

TECHNICAL MANUAL

ILLUSTRATED PARTS BREAKDOWN

**STORAGE TANK, LIQUID OXYGEN
TYPE TMU-20/E, 5000 GALLON
CAPACITY**

PART NO. 112220

NSN 3655-01-252-1257

**CRYENCO, INC.
(F41608-86-D-0279)**

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FOREWORD

Purpose. This technical manual will provide the using activity with a parts breakdown for the 5000 Gallon Liquid Oxygen Storage Tank, Type TMU-20/E.

Scope. This manual will provide the using activity with applicable information required for component identification. Any corrections regarding this technical manual should be submitted in accordance with T.O. 00-5-1.

Throughout this manual the unit will primarily be called the Tank. It may also be called the Storage Tank. Liquid oxygen will be abbreviated as LOX in parts of this manual.

SECTION I INTRODUCTION

1-1. GENERAL.

1-1.1. Purpose. This publication lists and identifies by part number, description, and appearance the items comprising as follows:

a. Storage Tank, Liquid Oxygen, Type TMU-20/E, 5000 Gallon Capacity, Part number 112220.

The Tank is manufactured by Cryenco, Inc., Denver, Colorado.

1-1.2. Scope. The breakdown is used for requisitioning, storing, issuing, and identifying parts. It may also be used for illustrating the assembly and disassembly relationship of parts or assembly of parts. This manual may also be used in conjunction with T.O. 37C2-8-36-1, Operation and Maintenance Instructions and T.O. 37C2-8-36-3, Overhaul Instructions manuals.

1-1.3. Arrangement. The Illustrated Parts Breakdown is divided into three (3) sections: The Introduction (Section I), Maintenance Parts Lists (Section II), and Numerical Index (Section III).

1-2. RELATED PUBLICATIONS.

1-2.1. Publications. The applicable Operation and Maintenance Instructions and Overhaul Instructions may be used with this Illustrated Parts Breakdown to provide a better understanding of the Tank. Each manual supplements the other manual.

1-3. MAINTENANCE PARTS LIST.

1-3.1. Explanation. The Maintenance Parts Lists, Section II, consists of the illustrated and tabulated breakdown. The listings are for major assemblies, subassemblies, and the detail parts of the Tank.

To aid in identification by appearance, each part in the listing is indexed to an exploded view illustration. Each main assembly listed is followed immediately by its component or detail parts which are properly indented to show the part's relationship to the assembly and recommended disassembly

sequence. Component parts of the Tank which are not included in any main assembly, but are used in conjunction with, attach to, or attach a main assembly, are listed either preceding or following the main assembly, are listed in with the assembly. Information is listed under the column headings described in the following paragraphs.

1-3.2. Figure and Index Number. The first figure in this column is the illustration number of the assembly listed. The figure number is not listed thereafter, except with the first item of the listing continued on succeeding pages. The number following the dash is the index number. The index numbers are arranged in numerical sequence in the order of recommended disassembly. These numbers are primarily used to assist in the location of a part description when the part has been found on the illustration or the Numerical Index.

1-3.3. Part Number. Part numbers are used exclusively to identify parts. All part numbers listed are those of the prime contractor, except for government standards or vendor parts. In the case of vendor parts, the part number appearing in this column represents the exact replacement part. When a part has no number, the notation (NO NUMBER) appears in the Part Number column. Part numbers followed by an asterisk (*) require requisitioning by AFR 6-1.

1-3.4. Federal Supply Code for Manufacturers (FSCM). The manufacturer of a vendor supplied item is identified in this column by the manufacturer's code. A list of applicable codes and manufacturers is presented at the end of this section.

1-3.5. Description. This column lists the nomenclature of assemblies, subassemblies, and detail parts, together with, where necessary, descriptive information sufficient to completely identify an item. Subassemblies and detail parts of an assembly follow the listing of the assembly and are indented to the next column. Attaching parts are identified by (AP) following the description.

1-3.6. Units Per Assembly. The quantities listed in this column are the total quantity used per Tank

at the location listed. The quantities used for assemblies, subassemblies, and detail parts of assemblies, indented under the main assembly, are the quantity used for assembly. The quantities specified are not necessarily the total used per Tank.

1-3.7. Usable On Code. This Storage Tank is manufactured incorporating one design for use in the storage of liquid oxygen.

1-3.8. Source, Maintainability, and Recovery Codes. This column contains the 5-character Joint Military Services Uniform code for each item supplied by the procuring activity. Definitions of these SMR Codes are available in T.O. 00-25-195.

1-4. NUMERICAL INDEX.

1-4.1. Explanation. The Numerical Index, Section III, is a complete alpha-numerical listing of all part numbers contained in the Maintenance Parts List, Section II. The location per article is listed under the column headings.

1-4.2. Part Number. This column lists all part numbers contained in the Maintenance Parts List, Section II. The part numbers are arranged in alphanumeric order, beginning with the extreme left-handed position and continued from the left to the right, one position at a time. In the first position, letters A through N and P through Z take precedence over numericals, 0 through 9 (Alphabetic Os are considered numeric zeros). For the second and succeeding characters of a part number, precedence is as follows:

- a. Diagonal (/).
- b. Period (.)
- c. Dash (-).
- d. Letters A through N and P through Z.
- e. Numerals 0 through 9.

NOTE

It should be noted that in the Numerical Index, in accordance with current practice in Federal Supply System, all prefix and suffix letters are closed up to numerals, consistently, whenever the identity of a part number is not affected.

1-4.3. Stock Number. The policy of including and updating stock number information has been discontinued. Refer to USAF Master Cross Reference Index S-00-1-1 for converting part numbers to stock number information.

1-4.4. Figure and Index Number. This column lists the figure number of the illustration and the index number. When an assembly, subassembly, or detail part has not been assigned an index number, the figure and index number of the preceding part in the Maintenance Parts List shall be used with the letter (F) before the figure number. The letter (F) means (FOLLOWS).

1-5. HOW TO USE THE ILLUSTRATED PARTS BREAKDOWN.

1-5.1. When The Part Number Is Not Known.

a. Determine the function and application of the part required. Turn to the Table of Contents and select the most appropriate title.

b. Turn to the page indicated and locate the desired part on the illustration.

c. From the illustration, obtain the index number assigned to the desired part. Refer to the accompanying description for specific information regarding the part.

1-5.2. When The Part Number Is Known.

a. When the part number is known, refer to Part III, Numerical Index. Locate the part number and note the figure and index number assigned to the part.

b. Turn to the figure indicated and locate the index number referenced in the Numerical Index.

c. For an illustration of a part or its location refer to the same index number on the accompanying illustration.

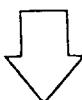
1-6. VENDOR CODES.

1-6.1. Explanation. Manufacturers of vendor parts and certain procuring agencies are identified in the FSCM column by a five-digit code obtained from the Federal Cataloging Handbook, H4-1. The

HOW TO USE THE ILLUSTRATED PARTS BREAKDOWN

IF YOU DON'T KNOW THE PART NUMBER

DO THIS

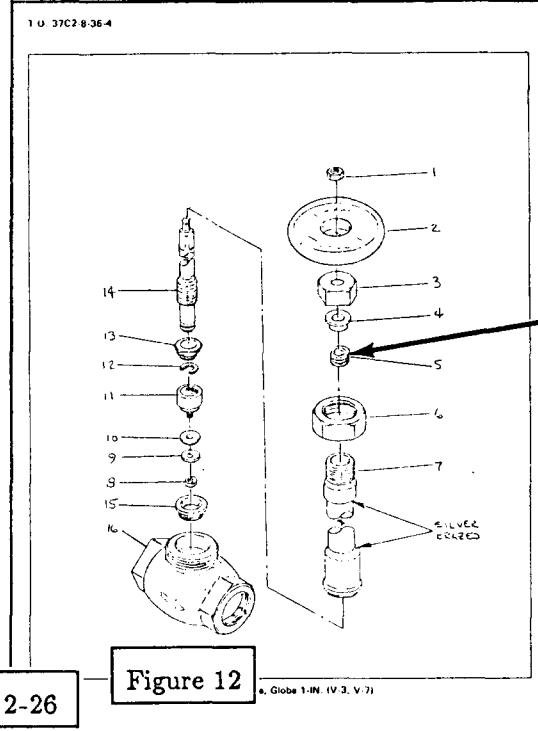


Refer to the Table of Contents and
select the illustration most likely to
contain the desired part.

T.O. 37C2-8-36-4			
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② Refer to the page number indicated and find the desired part on the illustration.

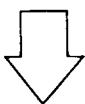
T.O. 37C2-8-36-4

FIGURE INDEX	PART NUMBER	ITEM	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE	SMR CODE
			1	2	3	4	5	6	7			
12-	11032	1	VALVE, Globe 1-IN. (V-3, V-7) (See Figures 3 and 4 in NIA)							REF		
	46422	2	NUT, Headless							1		
	46423	3	NUT, Headed							1		
	46427	4	NUT, Flanged							1		
	46428	5	FLANGE							1		
	46429	6	FLANGE, 1-IN. (V-3)							1		
	46422	7	FLANGE, 1-IN. (V-7)							1		
	46423	8	FLANGE, 1-IN. (V-3)							1		
	46423	9	FLANGE, 1-IN. (V-7)							1		
	46422	10	FLANGE, 1-IN. (V-3)							1		
	46422	11	FLANGE, 1-IN. (V-7)							1		
	46422	12	FLANGE, 1-IN. (V-3)							1		
	46422	13	FLANGE, 1-IN. (V-7)							1		
	46422	14	FLANGE, 1-IN. (V-3)							1		
	46422	15	FLANGE, 1-IN. (V-7)							1		
	46422	16	FLANGE, 1-IN. (V-3)							1		
	46422	17	FLANGE, 1-IN. (V-7)							1		
	46422	18	FLANGE, 1-IN. (V-3)							1		
	46422	19	FLANGE, 1-IN. (V-7)							1		
	46422	20	FLANGE, 1-IN. (V-3)							1		
	46422	21	FLANGE, 1-IN. (V-7)							1		
	46422	22	FLANGE, 1-IN. (V-3)							1		
	46422	23	FLANGE, 1-IN. (V-7)							1		
	46422	24	FLANGE, 1-IN. (V-3)							1		
	46422	25	FLANGE, 1-IN. (V-7)							1		
	46422	26	FLANGE, 1-IN. (V-3)							1		
	46422	27	FLANGE, 1-IN. (V-7)							1		
	46422	28	FLANGE, 1-IN. (V-3)							1		
	46422	29	FLANGE, 1-IN. (V-7)							1		
	46422	30	FLANGE, 1-IN. (V-3)							1		
	46422	31	FLANGE, 1-IN. (V-7)							1		
	46422	32	FLANGE, 1-IN. (V-3)							1		
	46422	33	FLANGE, 1-IN. (V-7)							1		
	46422	34	FLANGE, 1-IN. (V-3)							1		
	46422	35	FLANGE, 1-IN. (V-7)							1		
	46422	36	FLANGE, 1-IN. (V-3)							1		
	46422	37	FLANGE, 1-IN. (V-7)							1		
	46422	38	FLANGE, 1-IN. (V-3)							1		
	46422	39	FLANGE, 1-IN. (V-7)							1		
	46422	40	FLANGE, 1-IN. (V-3)							1		
	46422	41	FLANGE, 1-IN. (V-7)							1		
	46422	42	FLANGE, 1-IN. (V-3)							1		
	46422	43	FLANGE, 1-IN. (V-7)							1		
	46422	44	FLANGE, 1-IN. (V-3)							1		
	46422	45	FLANGE, 1-IN. (V-7)							1		
	46422	46	FLANGE, 1-IN. (V-3)							1		
	46422	47	FLANGE, 1-IN. (V-7)							1		
	46422	48	FLANGE, 1-IN. (V-3)							1		
	46422	49	FLANGE, 1-IN. (V-7)							1		
	46422	50	FLANGE, 1-IN. (V-3)							1		
	46422	51	FLANGE, 1-IN. (V-7)							1		
	46422	52	FLANGE, 1-IN. (V-3)							1		
	46422	53	FLANGE, 1-IN. (V-7)							1		
	46422	54	FLANGE, 1-IN. (V-3)							1		
	46422	55	FLANGE, 1-IN. (V-7)							1		
	46422	56	FLANGE, 1-IN. (V-3)							1		
	46422	57	FLANGE, 1-IN. (V-7)							1		
	46422	58	FLANGE, 1-IN. (V-3)							1		
	46422	59	FLANGE, 1-IN. (V-7)							1		
	46422	60	FLANGE, 1-IN. (V-3)							1		
	46422	61	FLANGE, 1-IN. (V-7)							1		
	46422	62	FLANGE, 1-IN. (V-3)							1		
	46422	63	FLANGE, 1-IN. (V-7)							1		
	46422	64	FLANGE, 1-IN. (V-3)							1		
	46422	65	FLANGE, 1-IN. (V-7)							1		
	46422	66	FLANGE, 1-IN. (V-3)							1		
	46422	67	FLANGE, 1-IN. (V-7)							1		
	46422	68	FLANGE, 1-IN. (V-3)							1		
	46422	69	FLANGE, 1-IN. (V-7)							1		
	46422	70	FLANGE, 1-IN. (V-3)							1		
	46422	71	FLANGE, 1-IN. (V-7)							1		
	46422	72	FLANGE, 1-IN. (V-3)							1		
	46422	73	FLANGE, 1-IN. (V-7)							1		
	46422	74	FLANGE, 1-IN. (V-3)							1		
	46422	75	FLANGE, 1-IN. (V-7)							1		
	46422	76	FLANGE, 1-IN. (V-3)							1		
	46422	77	FLANGE, 1-IN. (V-7)							1		
	46422	78	FLANGE, 1-IN. (V-3)							1		
	46422	79	FLANGE, 1-IN. (V-7)							1		
	46422	80	FLANGE, 1-IN. (V-3)							1		
	46422	81	FLANGE, 1-IN. (V-7)							1		
	46422	82	FLANGE, 1-IN. (V-3)							1		
	46422	83	FLANGE, 1-IN. (V-7)							1		
	46422	84	FLANGE, 1-IN. (V-3)							1		
	46422	85	FLANGE, 1-IN. (V-7)							1		
	46422	86	FLANGE, 1-IN. (V-3)							1		
	46422	87	FLANGE, 1-IN. (V-7)							1		
	46422	88	FLANGE, 1-IN. (V-3)							1		
	46422	89	FLANGE, 1-IN. (V-7)							1		
	46422	90	FLANGE, 1-IN. (V-3)							1		
	46422	91	FLANGE, 1-IN. (V-7)							1		
	46422	92	FLANGE, 1-IN. (V-3)							1		
	46422	93	FLANGE, 1-IN. (V-7)							1		
	46422	94	FLANGE, 1-IN. (V-3)							1		
	46422	95	FLANGE, 1-IN. (V-7)							1		
	46422	96	FLANGE, 1-IN. (V-3)							1		
	46422	97	FLANGE, 1-IN. (V-7)							1		
	46422	98	FLANGE, 1-IN. (V-3)							1		
	46422	99	FLANGE, 1-IN. (V-7)							1		
	46422	100	FLANGE, 1-IN. (V-3)							1		
	46422	101	FLANGE, 1-IN. (V-7)							1		
	46422	102	FLANGE, 1-IN. (V-3)							1		
	46422	103	FLANGE, 1-IN. (V-7)							1		
	46422	104	FLANGE, 1-IN. (V-3)							1		
	46422	105	FLANGE, 1-IN. (V-7)							1		
	46422	106	FLANGE, 1-IN. (V-3)							1		
	46422	107	FLANGE, 1-IN. (V-7)							1		
	46422	108	FLANGE, 1-IN. (V-3)							1		
	46422	109	FLANGE, 1-IN. (V-7)							1		
	46422	110	FLANGE, 1-IN. (V-3)							1		
	46422	111	FLANGE, 1-IN. (V-7)							1		
	46422	112	FLANGE, 1-IN. (V-3)							1		
	46422	113	FLANGE, 1-IN. (V-7)							1		
	46422	114	FLANGE, 1-IN. (V-3)							1		
	46422	115	FLANGE, 1-IN. (V-7)							1		
	46422	116	FLANGE, 1-IN. (

HOW TO USE THE ILLUSTRATED PARTS BREAKDOWN

IF YOU DO KNOW THE PART NUMBER

DO THIS



Find the Part Number in the Numerical Index. Note the Figure and Index Number where the part is called out in the parts list.

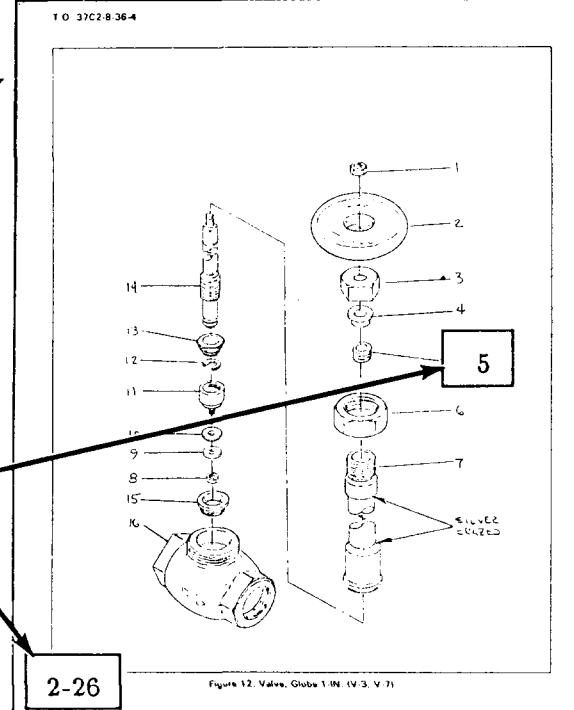
1

LINE	PART NUMBER	PCM	DESCRIPTION				UNITS PER ASSY	USABLE ON CODE	SMR CODE
			1	2	3	4			
12-	111028	48422	VALVE GLOBE (V-3, V-7)						
	108-KW-3-1	48422	(VALVE GLOBE AND STEM)						
	108-KW-2-1	48422	STEM						
-5	058309-6-1		VALVE GLOBE (V-3, V-7)						
	108-KW-3-1	48422	(VALVE GLOBE AND STEM)						
	108-KW-2-1	48422	STEM						
10	111028	48422	VALVE GLOBE (V-3, V-7)						
-11	108-KW-3-1	48422	(VALVE GLOBE AND STEM)						
-12	108-KW-2-1	48422	STEM						
13	108-KW-3-1	48422	VALVE GLOBE (V-3, V-7)						
14	108-KW-3-1	48422	(VALVE GLOBE AND STEM)						
15	108-KW-2-1	48422	STEM						
16	108-KW-3-1	48422	VALVE GLOBE (V-3, V-7)						
	108-KW-2-1	48422	(VALVE GLOBE AND STEM)						
	108-KW-2-1	48422	STEM						
2-27									

058309-6-1 12-5

Part Number	Figure and Index	Part Number	Figure and Index	Part Number	Figure and Index
MS31213-31	58309-16-2	13-3	112531	1-53	
MS31212-164	58309-16-3	11-10	112542	9-16	
	58309-17-1	12-15	112562	1-50	
MS31209-5	58309-17-8	10-13		8-	
	58309-17-2	13-13	112563	8-78	
	58309-17-3	13-15	112564	8-75	
	58309-18-1	13-15	112565	8-1	
	58309-18-4	10-16	112566	8-19	
	58309-18-2	13-19	112567	8-30	
	58309-18-3	11-16	112569	1-43	
	58309-19-3	11-8	112570	6-	
	58309-2-1	15-2	112573	6-28	
	58309-2-4	13-2	112591	6-25	
	58309-2-2	13-2	112592	6-21	
	58309-2-3	11-2	112593	6-8	
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	58309-3-1	12-14	112595	6-17	
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	58309-3-2	11-14	112597	6-15	
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	58309-4-1	10-3		5-	
MS31698-810	58309-4-1	10-3	112601	5-21	
MS31698-464	58309-4-2	13-3	112623	5-19	
MS31698-1	58309-4-3	11-3	112633	5-16	
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MS31698-1	58309-5-2	10-4	112654	1-19	
MS31698-1	58309-5-4	15-		4-	
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MS31698-1	58309-5-2	11-1		4-24	
MS31698-1	58309-5-1	12-4		4-19	
MS31698-1	58309-6-1	11-3	112654	4-11	
MS31698-1	58309-6-2	11-3	112661	4-14	
MS31698-1	58309-7-1	10-7	112673	4-12	
MS31698-1	58309-7-2	13-7	112671	4-13	
MS31698-1	58309-7-3	11-6		11-	
MS31698-1	58309-7-2	10-2	112709	F1-15	
MS31698-1	58309-7-1	11-2	112721	1-16	
MS31698-1	58309-7-0	11-3	112726	1-16	
MS31698-1	58309-7-0-1	11-3	112707	1-18	
MS31698-1	58309-7-0-2	11-1		5-3	
MS31698-1	58309-7-0-3	11-1		6-12	
MS31698-1	58309-7-0-4	11-1		10-	
MS31698-1	58309-7-0-5	9-1		10-	
MS31698-1	58309-7-0-6	8-16	112708	1-45	
MS31698-1	58309-7-0-7	8-13		7-	
MS31698-1	58309-7-0-8	9-2	112709	7-31	
MS31698-1	58309-7-0-9	9-3	112710	7-22	
MS31698-1	58309-7-0-10	9-5	112711	7-25	
MS31698-1	58309-7-0-11	11-11	112723	9-4	
MS31698-1	58309-7-0-12	12-8	112723	112712	7-1
MS31698-1	58309-7-0-13	10-8	112779	1-54	7-5

2 Turn to the Figure and Index Number indicated to obtain the desired information



When the illustration of the part is desired then refer to the same Figure and Index Number on the accompanying illustration.

2-26

Figure 12. Valve, Globe 1-IN (V-3, V-7)

following is a list of the codes used in Section II together with the names and addresses of the vendors. FSCM's are listed first in numerical sequence (Code to Name) and immediately followed by an alphabetically sequenced listing of all manufacturers and agencies (Name to Code).

<u>Code</u>	<u>Name and Address of Manufacturer/Responsible Agency</u>
02570	Crawford Fitting Company 29500 Solon Road Solon, Ohio 44139
14487	Cryenco, Inc. 5995 North Washington Street Denver, Colorado 80229
18876	Army Missile Command Redstone Arsenal, Alabama 35809
48422	William Powell Company 2503 Spring Grove Avenue Cincinnati, Ohio 45214
96906	Military Standards promulgated by Military Departments under the authority of Defense Standardization Manual, 4120-3-M
98750	San Antonio Air Logistics Center Kelly Air Force Base, Texas 78241
<u>Name and Address of Manufacturer/ Responsible Agency</u>	
<u>Code</u>	
Army Missile Command Redstone Arsenal, Alabama 35809	
18876	
Crawford Fitting Company 29500 Solon Road Solon, Ohio 44139	
02570	
Cryenco, Inc. 5995 North Washington Street Denver, Colorado 80229	
14487	
Military Standards promulgated by Military Departments under the authority of Defense Standardization Manual, 4120-3-M	
96906	

San Antonio Air Logistics Center	98750
Kelly Air Force Base, Texas 78241	

William Powell Company	48422
2503 Spring Grove Avenue	
Cincinnati, Ohio 45214	

1-7. SYMBOLS AND ABBREVIATIONS.

1-7.1. General. To conserve space (particularly in the description column of Section II), certain symbols and abbreviations have been used. An explanation of these follows:

<u>Symbol or Abbreviation</u>	<u>Explanation</u>
AP	attaching parts
AR	as required
ASSY	assembly
CAD-PL	cadmium plated
CO	company
COML	commercial
CORP	corporation
DECAL	decalco mania
DEG	degree
DIV	division
F	follows
HD	head
HEX	hexagonal
IN	inches
I.D.	inside diameter
INC	incorporated
LG	long
LN ₂	liquid nitrogen
NHA	next higher assembly
NSN	National Stock Number
O.D.	outside diameter
PBU	pressure buildup unit
PSI	pounds per square inch
RD	round
REF	reference
STL	steel
THK	thick
W.T.	wall thickness

Military Standards promulgated by Military
Departments under the authority of Defense
Standardization Manual, 4120-3-M

SECTION II MAINTENANCE PARTS LIST

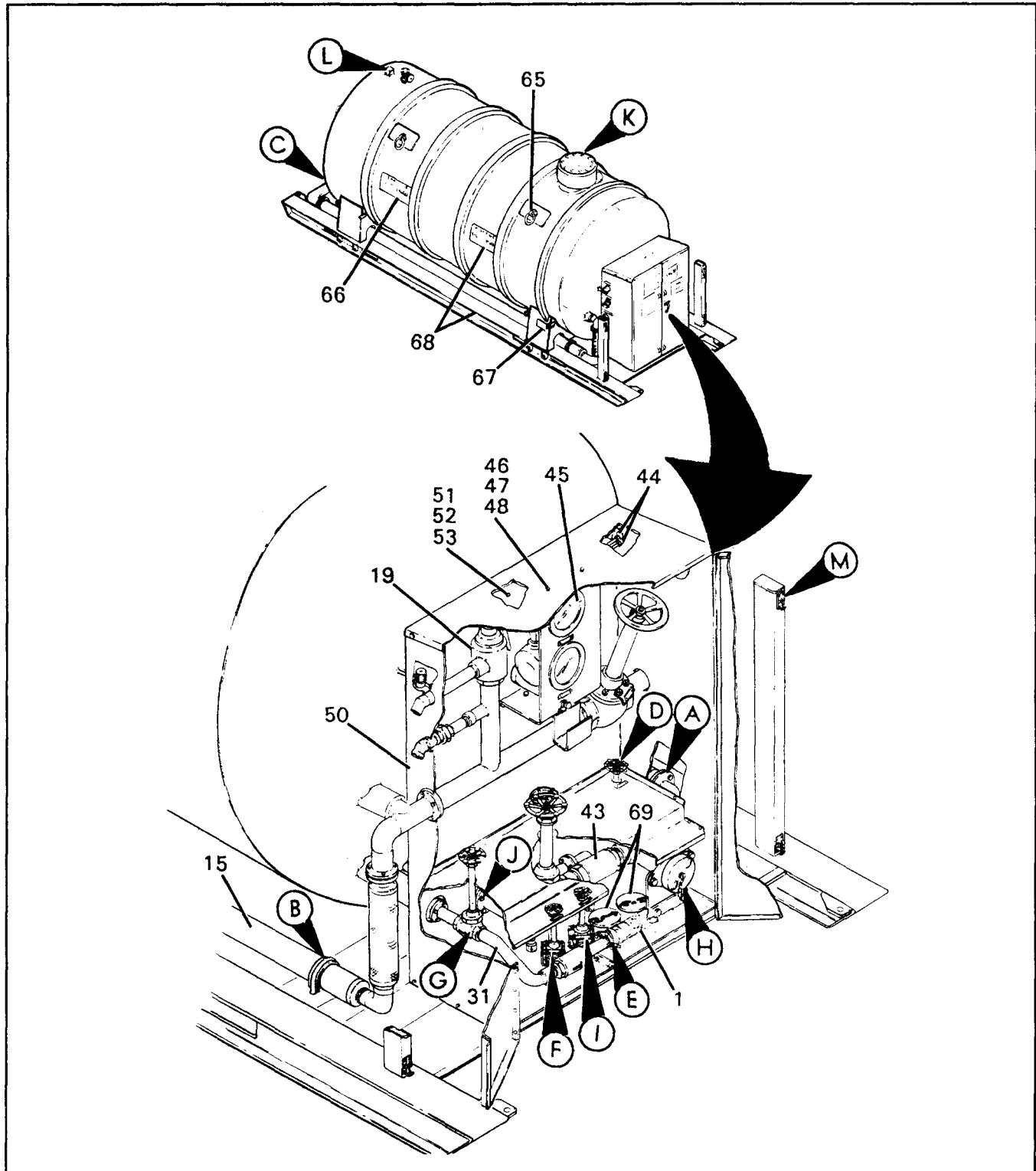


Figure 1. Storage Tank, Liquid Oxygen, 5000-Gallon, Type TMU-20/E

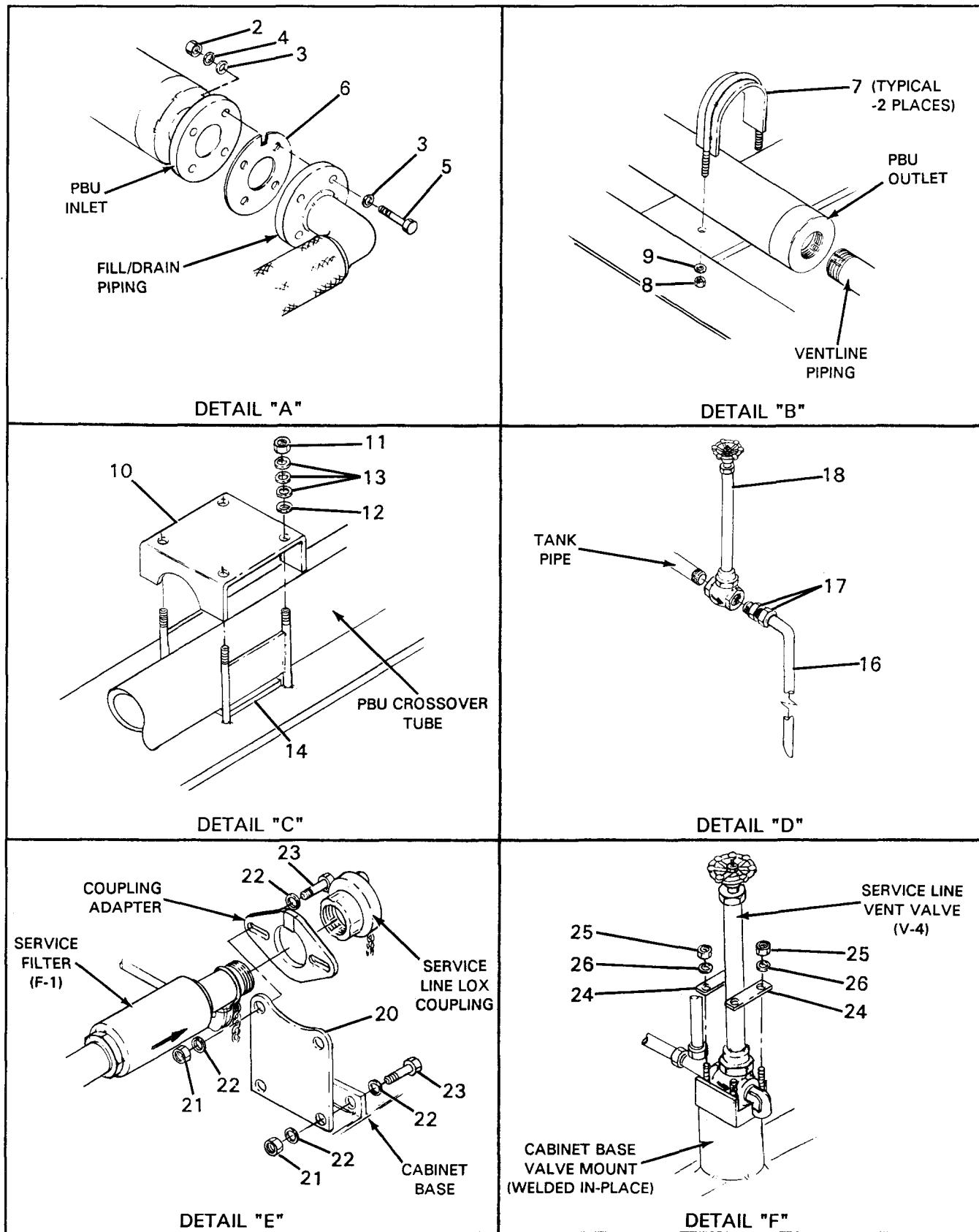


Figure 1. Storage Tank, Liquid Oxygen, 5000-Gallon, Type TMU-20/E - CONT

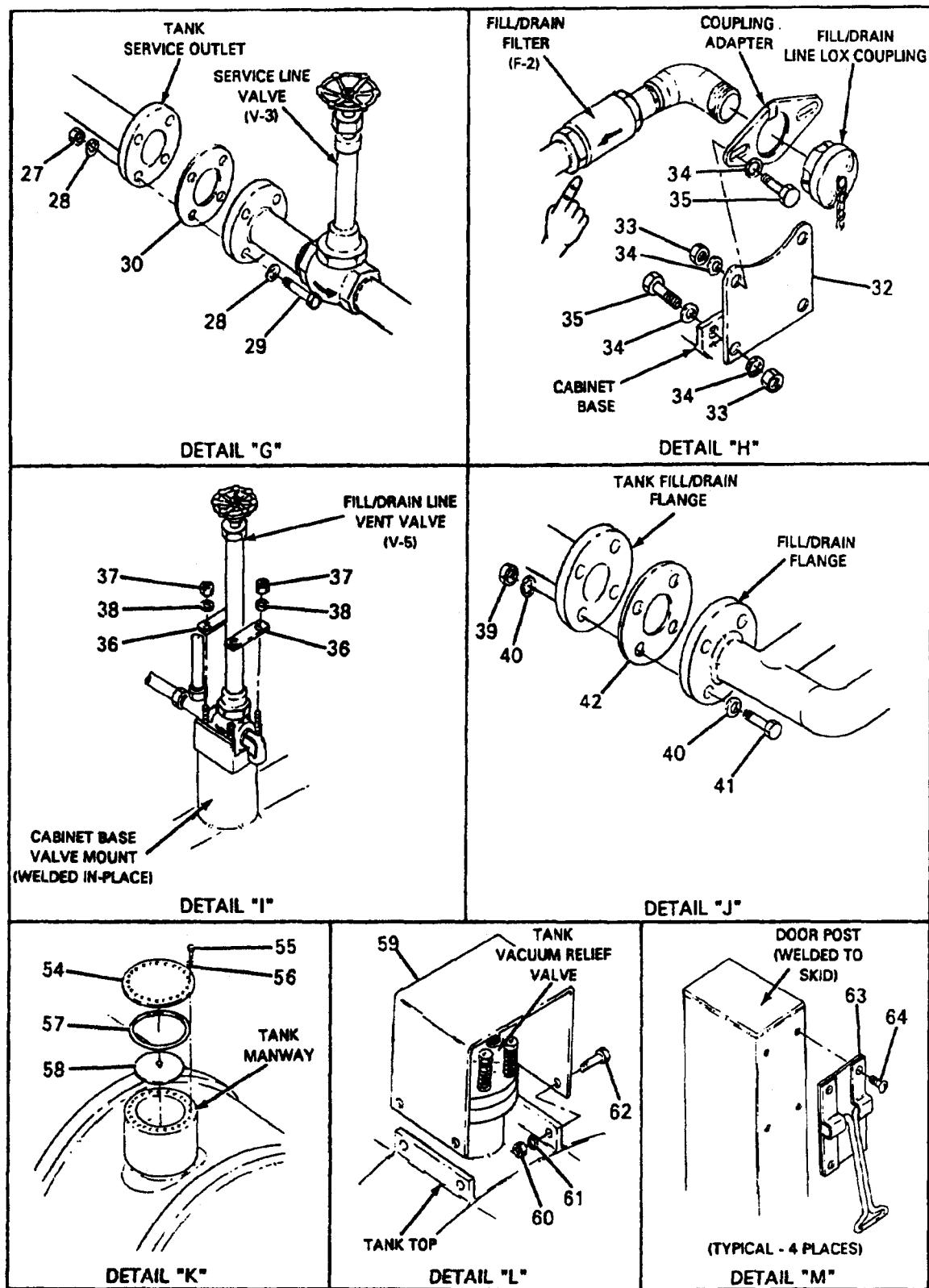


Figure 1. Storage Tank, Liquid Oxygen, 5000-Gallon, Type TMU-20/E - CONT

G9400887

FIGURE & INDEX NUMBER	PART NUMBER	FSCM	1 2 3 4 5 6 7	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE	SMR CODE
1-	112220	14487		STORAGE TANK, Liquid Oxygen	REF		PPOFDS
-1	113973	14487		5000-Gallon, Type TMU-20/E HOSE ASSEMBLY, Transfer, Liquid Oxygen .. (See Figure 2 for breakdown)	1		AOO
-2	MS17830-10C	96906		NUT, Hex, self-locking	4		PAFZZN
-3	MS15795-320	96906		WASHER, Flat	8		PAFZZN
-4	113946	14487		WASHER, Belleville	4		PAFZZN
-5	MS16208-146	96906		BOLT, Hex Hd	4		PAFZZN
-6	113965	14487		GASKET	1		MF
-7	113989	14487		CLAMP, Front	2		MF
-8	MS17830-8C	96906		NUT, Hex, self-locking (AP)	4		PAFZZN
-9	MS15795-318	96906		WASHER, Flat (AP)	4		PAFZZN
-10	113971	14487		CLAMP, Rear	1		MF
-11	MS17830-12C	96906		NUT, Hex, self-locking (AP)	4		PAFZZN
-12	MS15795-322	96906		WASHER, Flat (AP)	4		PAFZZN
-13	113977	14487		WASHER, Belleville (AP)	12		PAFZZN
-14	113972	14487		INSULATOR	1		MF
-15	112222	14487		PBU PIPE ASSEMBLY .. (See Figure 3 for breakdown)	1		AFF
	112705	14487		FULL TRYCOCK PIPE ASSEMBLY	1		AFF
-16	112706	14487		TUBE	1		MF
-17	113608	14487		CONNECTOR, Male	1		PAFZZN
B-811-1-8		02570		CONNECTOR, Male	1		XA
B-803-1		02570		FERRULE, Front	1		XA
B-804-1		02570		FERRULE, Rear	1		XA
B-802-1		02570		NUT	1		XA
-18	112707	14487		VALVE, Globe, 1/4-IN. (V-9) .. (See Figure 10 for breakdown)	1		PAFZZN
-19	112658	14487		VENT LINE PIPE ASSEMBLY .. (See Figure 4 for breakdown)	1		AFF
-20	113494	14487		BRACKET, Service	1		MF
-21	MS17830-6C	96906		NUT, Hex, self-locking (AP)	4		PAFZZN
-22	MS15795-314	96906		WASHER, Flat (AP)	8		PAFZZN
-23	MS16208-53	96906		BOLT, Hex Hd (AP)	4		PAFZZN
-24	113199	14487		BAR, Valve Mounting	2		MF
-25	MS17830-4C	96906		NUT, Hex, self-locking (AP)	4		PAFZZN
-26	MS15795-310	96906		WASHER, Flat (AP)	4		PAFZZN
-27	MS17830-8C	96906		NUT, Hex, self-locking	4		PAFZZN
-28	MS15795-318	96906		WASHER, Flat	8		PAFZZN
-29	MS16208-107	96906		BOLT, Hex	4		PAFZZN
-30	113070	14487		GASKET, 1-IN	1		PAFZZN
-31	112630	14487		SERVICE LINE PIPE ASSEMBLY .. (See Figure 5 for Breakdown)	1		AFF
-32	113413	14487		BRACKET, Fill/drain	1		MF
-33	MS17830-8C	96906		NUT, Hex, self-locking (AP)	4		PAFZZN
-34	MS15795-318	96906		WASHER, Flat (AP)	8		PAFZZN
-35	MS16208-104	96906		BOLT, Hex Hd (AP)	4		PAFZZN
-36	113199	14487		BAR, Valve Mounting	2		MF
-37	MS17830-4C	96906		NUT, Hex, self-locking (AP)	4		PAFZZN
-38	MS15795-310	96906		WASHER, Flat (AP)	4		PAFZZN
-39	MS17830-10C	96906		NUT, Hex, self-locking (AP)	4		PAFZZN
-40	MS15795-320	96906		WASHER, Flat	8		PAFZZN
-41	MS16208-144	96906		BOLT, Hex Hd	4		PAFZZN
-42	113071	14487		GASKET, 2-IN	1		MF

FIGURE & INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE	SMR CODE
			1	2	3	4	5	6	7			
1-43	112589	14487	.	FILL/DRAIN PIPING ASSEMBLY	(See Figure 6 for breakdown)	.	.	.	.	1		AFF
-44	113993	14487	.	ELBOW, Tube .....		.	.	.	.	2		PAFZZN
	B-400-9	02570	.	ELBOW .....		.	.	.	.	1		XA
	B-403-1	02570	.	FERRULE, Front .....		.	.	.	.	2		XA
	B-404-1	02570	.	FERRULE, Rear .....		.	.	.	.	2		XA
	B-402-1	02570	.	NUT .....		.	.	.	.	2		PAFZZN
-45	112708	14487	.	GAGE PANEL ASSEMBLY	(See Figure 7 for breakdown)	.	.	.	.	1		AFF
-46	MS20635-A428	96906	.	NUT, Hex, self-locking (AP) .....		.	.	.	.	4		PAFZZN
-47	MS15795-310	96906	.	WASHER, Flat (AP) .....		.	.	.	.	8		PAFZZN
-48	MS35292-6	96906	.	BOLT, Hex Hd (AP) .....		.	.	.	.	4		PAFZZN
-49			.			.	.	.	.
-50	112562	14487	.	CABINET ASSEMBLY	(See Figure 8 for breakdown)	.	.	.	.	1		AFF
-51	MS20635-A428	96906	.	NUT, Hex, self-locking (AP) .....		.	.	.	.	2		PAFZZN
-52	MS15795-310	96906	.	WASHER, Flat (AP) .....		.	.	.	.	4		PAFZZN
-53	MS35292-6	96906	.	BOLT, Hex Hd (AP) .....		.	.	.	.	2		PAFZZN
-54	112379	14487	.	COVER, Manway .....		.	.	.	.	1		XA
-55	MS90725-113	96906	.	BOLT, Hex Hd (AP) .....		.	.	.	.	24		PAFZZN
-56	MS35338-29	96906	.	WASHER, Lock, split (AP) .....		.	.	.	.	24		PAFZZN
-57	MS9068-464	96906	.	O-RING .....		.	.	.	.	1		PAFZZN
-58	113092	14487	.	PLATE, Radiation .....		.	.	.	.	1		MF
-59	112531	14487	.	COVER, Pumpout .....		.	.	.	.	1		MF
-60	MS20635-A428	96906	.	NUT, Hex, self-locking (AP) .....		.	.	.	.	4		PAFZZN
-61	MS15795-310	96906	.	WASHER, Flat (AP) .....		.	.	.	.	4		PAFZZN
-62	MS35292-6	96906	.	BOLT, Hex Hd (AP) .....		.	.	.	.	4		PAFZZN
-63	112955	14487	.	LATCH .....		.	.	.	.	4		PAFZZN
-64	MS35226-64	96906	.	SCREW, Pan, slotted (AP) .....		.	.	.	.	16		PAFZZN
-65	49B6564	18876	.	RING, Eyebolt, 25,000# .....		.	.	.	.	4		PAFZZN
-66	822104-01	98750	.	DECAL, LOX .....		.	.	.	.	5		PAOZZ
-67	44078	98750	.	NAMEPLATE .....		.	.	.	.	1		PAFZZ
-68	112221	14487	.	TANK (VACUUM) AND SKID ASSEMBLY	(See Figure 9 for breakdown)	.	.	.	.	1		XA
-69	8991192	18876	.	COUPLING, Female, LOX .....		.	.	.	.	2		PAFZZN
	8984991	18876	.	PLUG .....		.	.	.	.	1		XA
	8984434	18876	.	NUT .....		.	.	.	.	1		XA
	8984435	18876	.	CONE .....		.	.	.	.	1		XA
	8987844	18876	.	RING, Retaining .....		.	.	.	.	1		XA
	506885	18876	.	"S"-HOOK .....		.	.	.	.	1		PAFZZN
	8034683	18876	.	CHAIN .....		.	.	.	.	12 IN.		MF

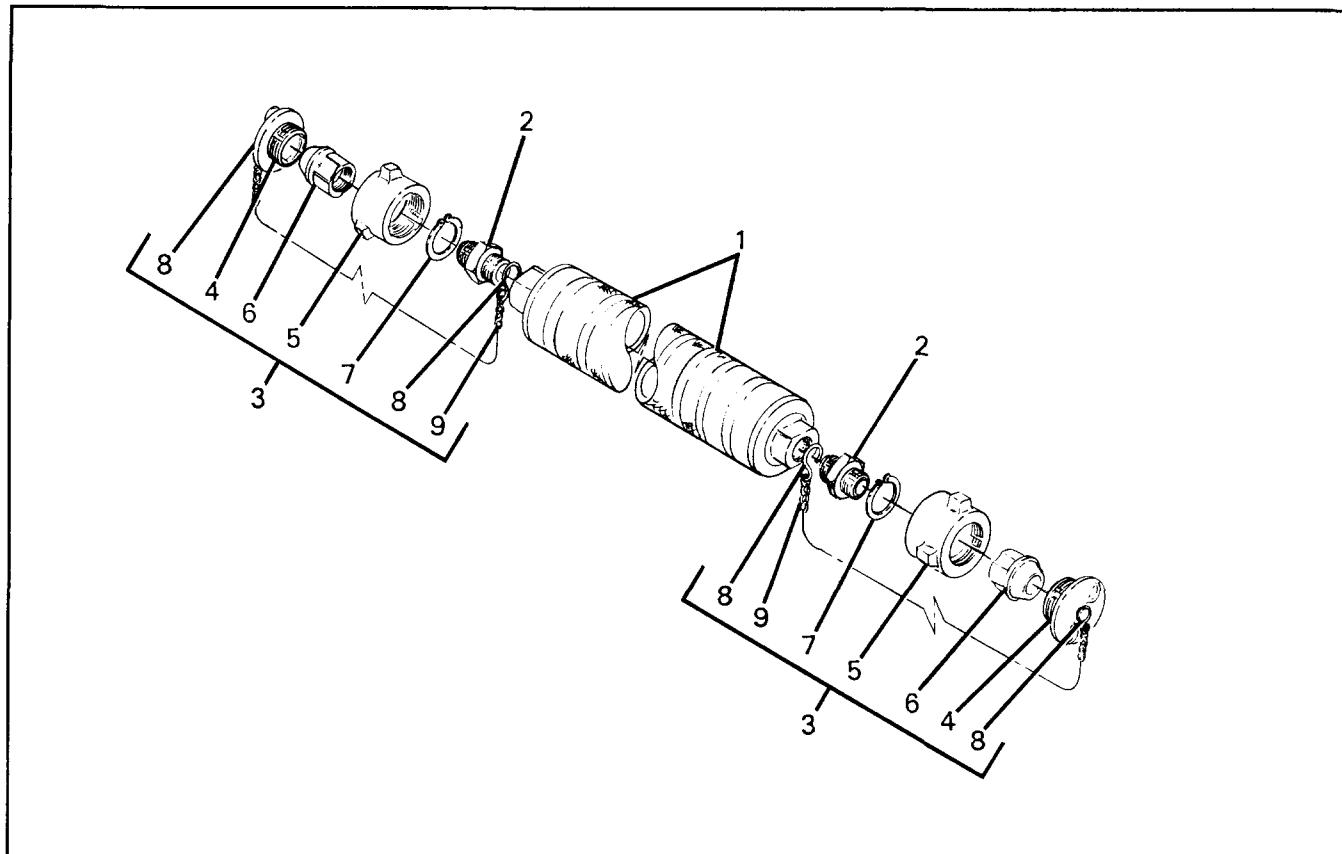


Figure 2. Transfer Hose Assembly, Liquid Oxygen

FIGURE & INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE	SMR CODE
			1	2	3	4	5	6	7			
2-	113973	14487	HOSE ASSEMBLY, Transfer, Liquid Oxygen	(See Figure 1 for NHA)						REF		AOO
-1	59C6671-2	98750	. . HOSE							1		PAFZZN
-2	113495	14487	. . NIPPLE, Hex, 1-inch							2		PAFZZN
-3	8991174	18876	. . CONNECTOR, Female, LOX							2		PAFZZN
-4	8987870	18876	. . . PLUG							1		PAFZZN
-5	8987857	18876	. . . NUT							1		PAFZZN
-6	8987856	18876	. . . CONE							1		PAFZZN
-7	8987840	18876	. . . RING, Retaining							1		PAFZZN
-8	506885	18876	. . . "S"-HOOK							2		PAFZZN
-9	8034683	18876	. . . CHAIN							12 IN.		MF

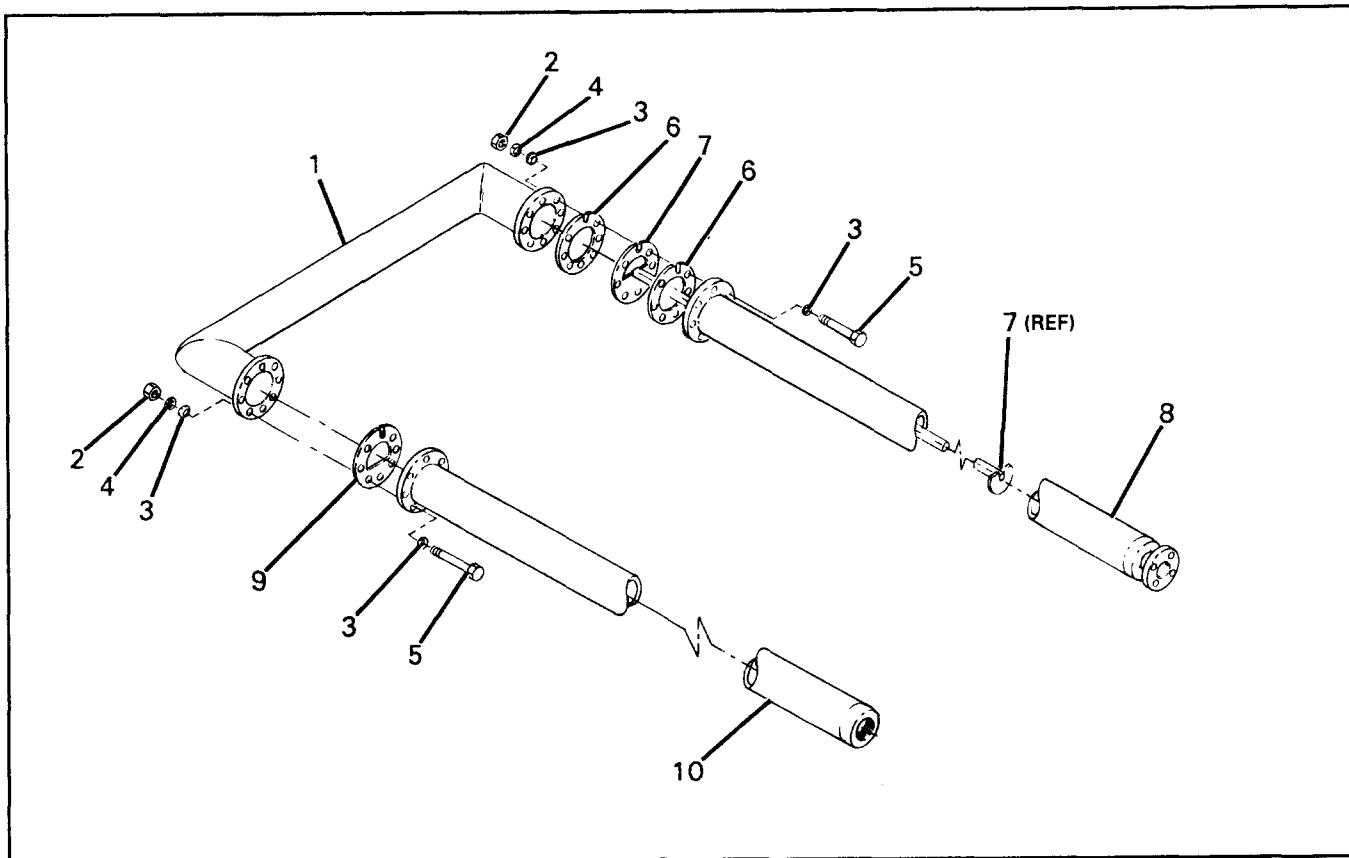


Figure 3. PBU Pipe Assembly

FIGURE & INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE	SMR CODE
			1	2	3	4	5	6	7			
3-	112222	14487	PBU PIPE ASSEMBLY							REF		AFF
-1	113082	14487	(See Figure 1 for NHA)									
-2	MS17830-8C	96906	. TUBE, Crossover							1		PAFZZN
-3	MS14795-318	96906	. NUT, Hex, self-locking (AP)							16		PAFZZN
-4	113939	14487	. WASHER, Flat (AP)							32		PAFZZN
-5	MS16208-113	96906	. WASHER, Belleville (AP)							16		PAFZZN
-6	113937	14487	. BOLT, Hex Hd (AP)							16		PAFZZN
-7	113936	14487	. GASKET, Baffle							2		MF
-8	113085	14487	. BAFFLE							1		XA
-9	113938	14487	. TUBE, Inlet							1		PAFZZN
-10	113083	14487	. GASKET							1		MF
			. TUBE, Outlet							1		PAFZZN

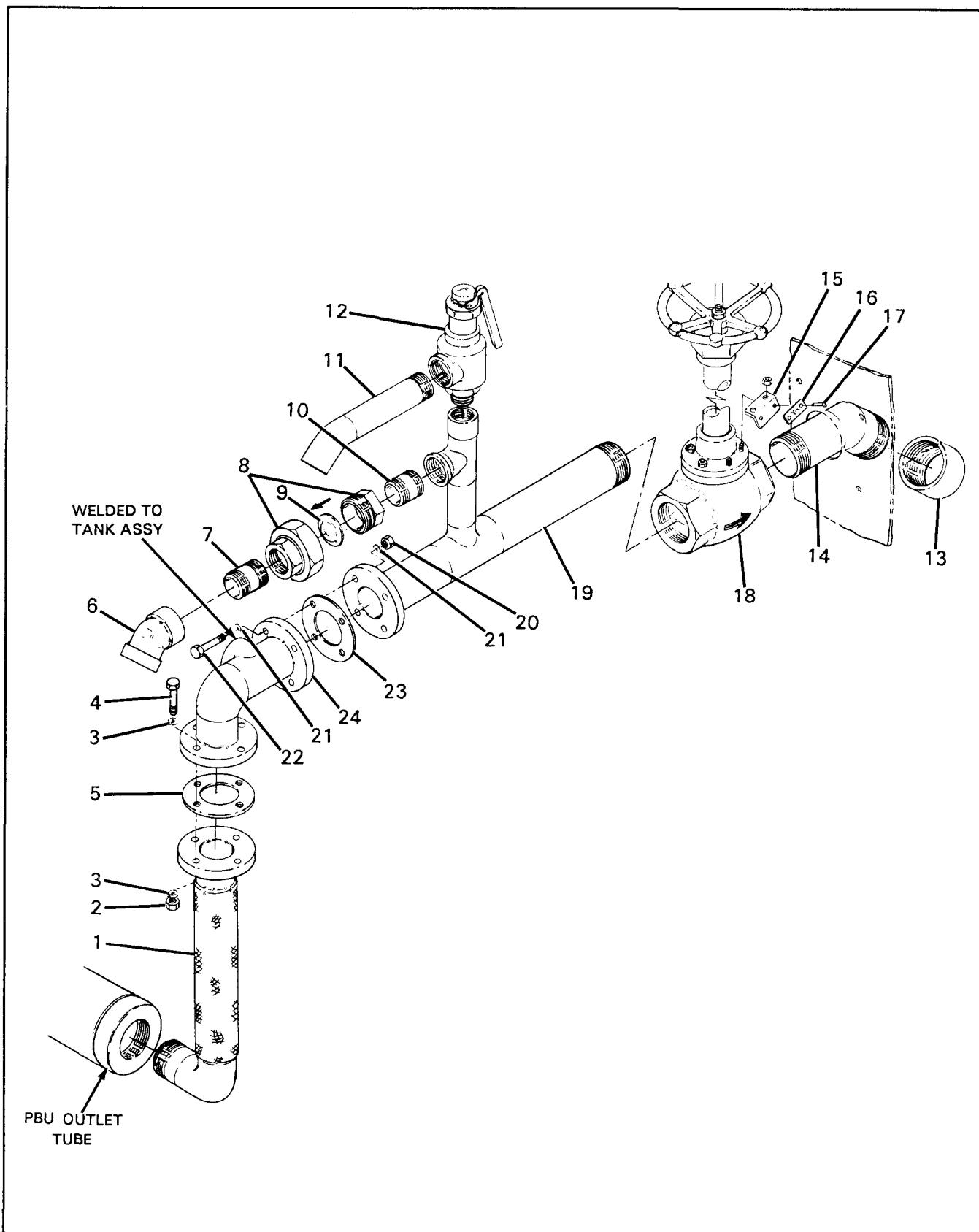
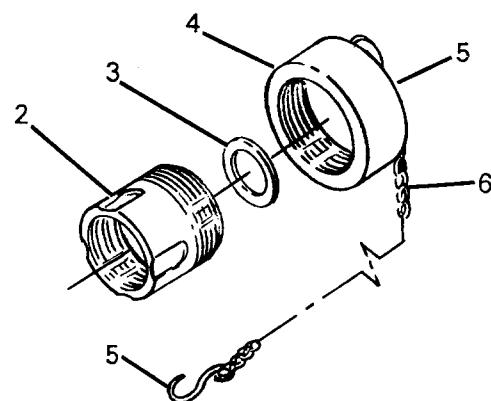
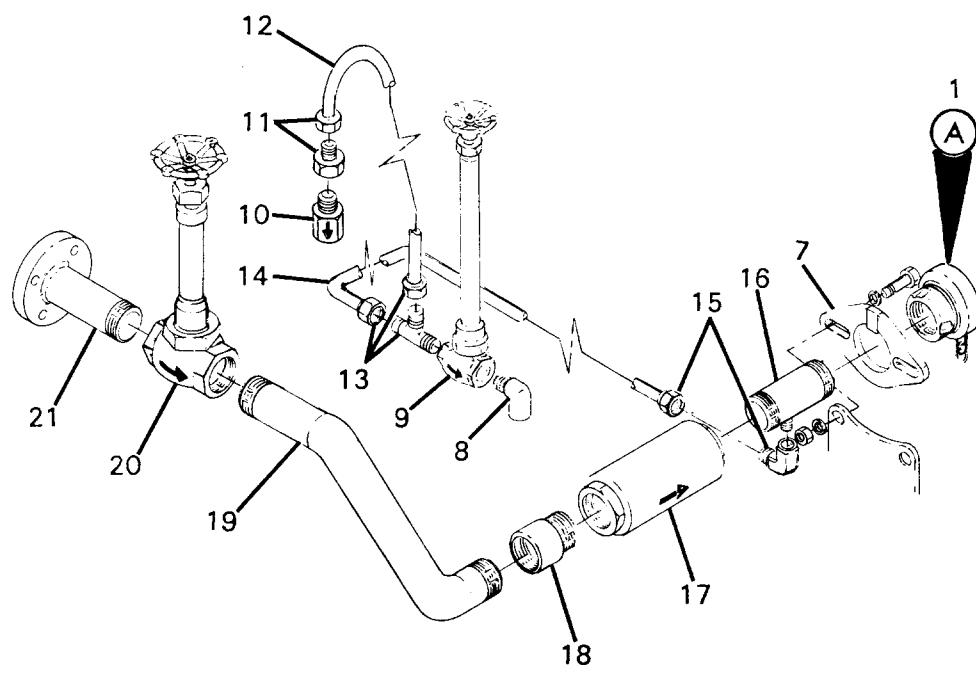


Figure 4. Vent Line Pipe Assembly

FIGURE & INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE	SMR CODE
4-	112658	14487	VENT LINE PIPE ASSEMBLY (See Figure 1 for NHA)	REF		AFF
-1	112659	14487	PIPE SUBASSEMBLY	1		PAFZZN
-2	MS17830-10C	96906	NUT, Hex, self-locking (AP)	4		PAFZZN
-3	MS15795-320	96906	WASHER, Flat (AP)	8		PAFZZN
-4	MS16208-145	96906	BOLT, Hex Hd (AP)	4		PAFZZN
-5	112967	14487	GASKET, 3-IN	1		MF
-6	COML		ELBOW, Screwed, 45°, 2"-B16.5, 125# brass	1		PAFZZN
-7	113975	14487	PIPE	1		MF
-8	112966	14487	HOLDER, Rupture Disk	1		PAFZZ
-9	112670	14487	DISK, Rupture	1		PAFZZ
-10	113974	14487	PIPE	1		MF
-11	112663	14487	PIPE	1		MF
-12	112669	14487	VALVE, Relief (RV-3)	1		PAFZZN
-13	COML	14487	COUPLING, Screwed, 3"-B16.15, 125# brass	1		PAFZZN
-14	112664	14487	PIPE SUBASSEMBLY	1		MF
-15	113285	14487	BRACKET, Tag	1		MF
-16	113406	14487	NAMEPLATE, V-8	1		MF
-17	MS20600-AD4W4	96906	RIVET, Blind (AP)	2		PAFZZN
-18	112671	14487	VALVE, Globe, 3-IN (V-8) (See Figure 11 for breakdown)	1		PAFZZN
-19	112661	14487	PIPE SUBASSEMBLY	1		PAFZZN
-20	MS17830-10C	96906	NUT, Hex, self-locking (AP)	4		PAFZZN
-21	MS15795-320	96906	WASHER, Flat (AP)	8		PAFZZN
-22	MS16208-147	96906	BOLT, Hex Hd (AP)	4		PAFZZN
-23	112967	14487	GASKET, 3-IN	1		MF
-24	112660	14487	PIPE SUBASSEMBLY (welded in place)	1		MF



DETAIL "A"

Figure 5. Service Line Pipe Assembly

FIGURE & INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE	SMR CODE
			1	2	3	4	5	6	7			
5-	112630	14487	SERVICE LINE PIPE ASSEMBLY							REF		AFF
			(See Figure 1 for NHA)									
-1	8991173	18876	COUPLING, Male, LOX							1		PAFZZN
-2	8987855	18876	SEAT, Male, 1-IN., LOX							1		PAFZZN
-3	8987833	18876	GASKET, 1-IN., LOX							1		PAFZZN
-4	8987869	18876	CAP, 1-IN., LOX							1		PAFZZN
-5	506885	18876	"S"-HOOK							2		PAFZZN
-6	8034683	18876	CHAIN							12 IN.		MF
-7	113492	14487	ADAPTER, Coupling							1		PAFZZN
-8	COML		ELBOW, Street 90°, 1/4-B16.15, 125#, brass							1		PAFZZN
-9	112707	14487	VALVE, Globe, 1/4-IN. (V-4)							1		PAFZZN
			(See Figure 10 for breakdown)									
-10	113029	14487	VALVE, Relief (RV-1)							1		PAFZZN
-11	113490	14487	CONNECTOR, Female							1		PAFZZN
B-811-7-8		02570	CONNECTOR, Female							1		XA
B-803-1		02570	FERRULE, Front							1		XA
B-804-1		02570	FERRULE, Rear							1		XA
B-802-1		02570	NUT							1		XA
-12	112596	14487	TUBE							1		MF
-13	113491	14487	TEE, Male Run							1		PAFZZN
B-811-3-8-TMT		02570	TEE, Male Run							1		XA
B-803-1		02570	FERRULE, Front							2		XA
B-804-1		02570	FERRULE, REAR							2		XA
B-802-1		02570	NUT							2		XA
-14	112634	14487	TUBE							1		MF
-15	113496	14487	ELBOW, Female							1		PAFZZN
B-811-8-4		02570	ELBOW, Female							1		XA
B-803-1		02570	FERRULE, Front							1		XA
B-804-1		02570	FERRULE, REAR							1		XA
B-802-1		02570	NUT							1		XA
-16	112633	14487	PIPE SUBASSEMBLY							1		MF
-17	8321391	98750	FILTER, 1-IN. (P-1)							1		PAFZZN
-18	113497	14487	ADAPTER, 1-IN, Brass							1		PAFZZN
-19	112632	14487	PIPE SUBASSEMBLY							1		PAFZZN
-20	113028	14487	VALVE, Globe, 1-IN. (V-3)							1		PAFZZN
			(See Figure 12 for breakdown)									
-21	112631	14487	PIPE SUBASSEMBLY							1		MF

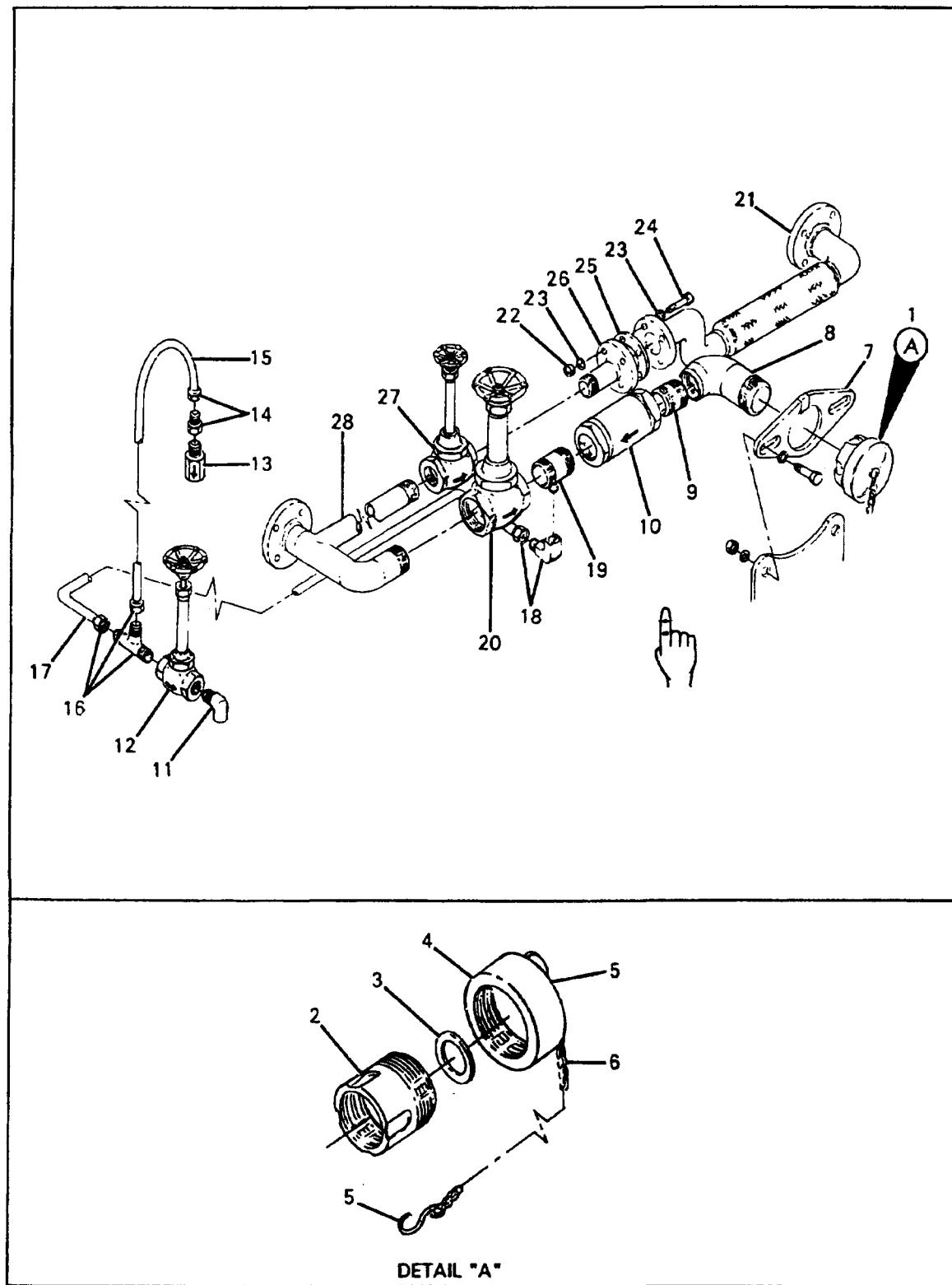


Figure 6. Fill/Drain Piping Assembly

FIGURE & INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE	SMR CODE
			1	2	3	4	5	6	7			
6-	112589	14487	FILL/DRAIN PIPING ASSEMBLY							REF		AFF
-1	8991187	18876	COUPLING, Male, LOX							1		PAFZZN
-2	8984433	18876	SEAT, Male 3½-IN, LOX							1		PAFZZN
-3	8987837	18876	GASKET, 3½-IN, LOX							1		PAFZZN
-4	8984990	18876	CAP, 3½-IN, LOX							1		PAFZZN
-5	506885	18876	"S"-HOOK							2		PAFZZN
-6	8034683	18876	CHAIN							12 IN.		MF
-7	113412	14487	ADAPTER, Coupling							1		PAFZZN
-8	112593	14487	PIPE SUBASSEMBLY							1		PAFZZN
-9	113506	14487	PIPE							1		MF
-10	8518507	98750	FILTER, 2-IN (F-2)							1		PAFZZN
-11	COML		ELBOW, Street, 90°, ¼"-B16.15, 125#, Brass ..							1		PAFZZN
-12	112707	14487	VALVE, Globe ½-IN, (V-5)							1		PAFZZN
			(See Figure 10 for breakdown)									
-13	113029	14487	VALVE, Relief (RV-2)							1		PAFZZN
-14	113490	14487	CONNECTOR, Female							1		PAFZZN
	B-811-7-8	02570	CONNECTOR, Female							1		XA
	B-803-1	02570	FERRULE, Front							1		XA
	B-804-1	02570	FERRULE, Rear							1		XA
	B-802-1	02570	NUT							1		XA
-15	112596	14487	TUBE							1		MF
-16	113491	14487	TEE, Male Run							1		PAFZZN
	B-811-3-8-TMT	02570	TEE, Male Run							1		XA
	B-803-1	02570	FERRULE, Front							2		XA
	B-804-1	02570	FERRULE, Rear							2		XA
	B-802-1	02570	NUT							2		XA
-17	112595	14487	TUBE							1		MF
-18	113496	14487	ELBOW, Female							1		PAFZZN
	B-811-8-4	02570	ELBOW, Female							1		XA
	B-803-1	02570	FERRULE, Front							1		XA
	B-804-1	02570	FERRULE, Rear							1		XA
	B-802-1	02570	NUT							1		XA
-19	112594	14487	PIPE SUBASSEMBLY							1		MF
-20	113023	14487	VALVE, Globe, 2-IN. (V-6)							1		PAFZZN
			(See Figure 13 for breakdown)									
-21	112592	14487	PIPE SUBASSEMBLY							1		PAFZZN
-22	MS17830-8C	96906	NUT, Hex, self-locking (AP)							4		PAFZZN
-23	MS15795-318	96906	WASHER, Flat (AP)							8		PAFZZN
-24	MS16208-107	96906	BOLT, Hex Hd (AP)							4		PAFZZN
-25	113070	14487	GASKET, 1-IN.							1		MF
-26	112591	14487	PIPE SUBASSEMBLY							1		PAFZZN
-27	113028	14487	VALVE, Globe, 1-IN. (V-7)							1		PAFZZN
			(See Figure 12 for breakdown)									
-28	112590	14487	PIPE SUBASSEMBLY							1		PAFZZN

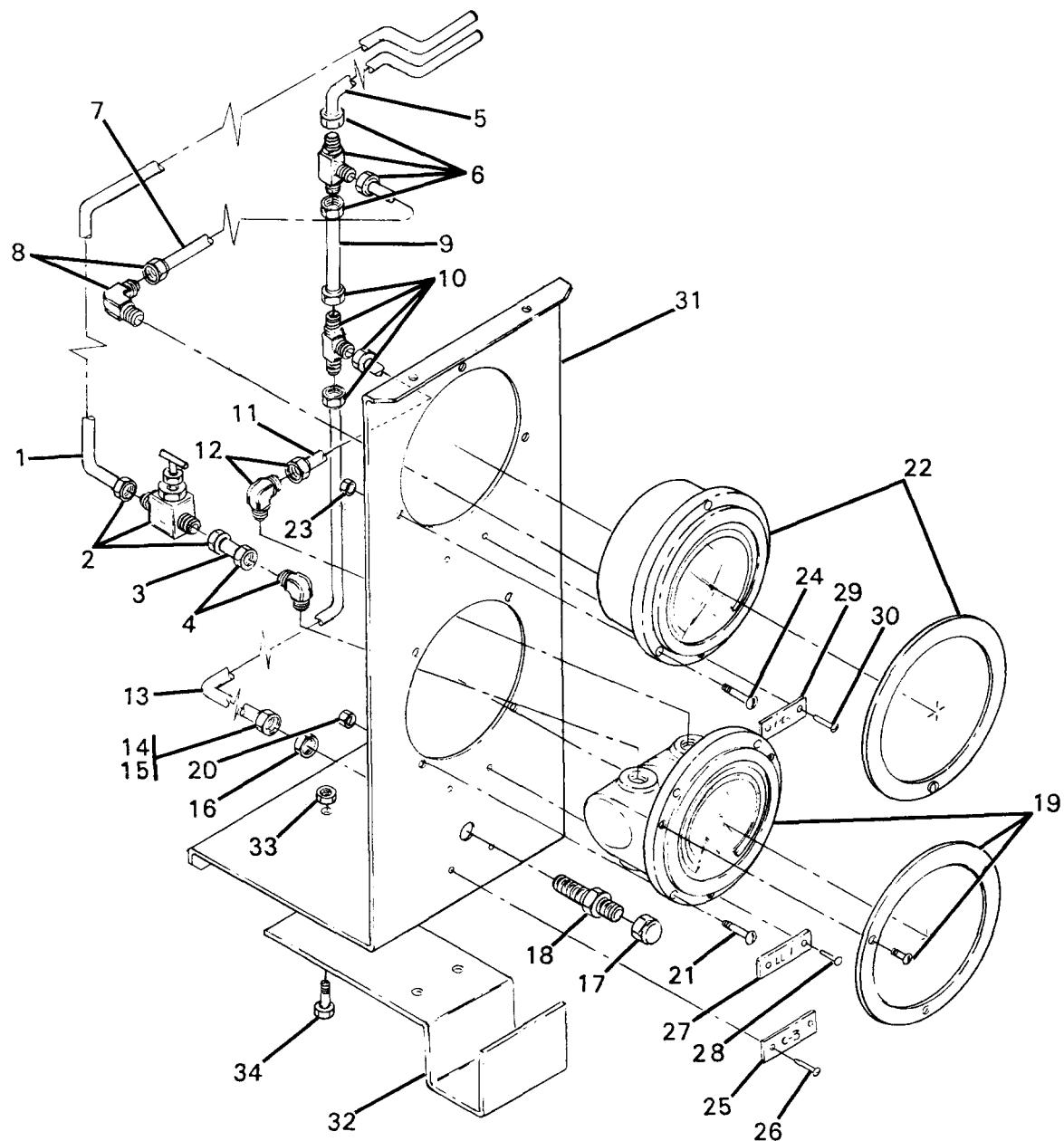


Figure 7. Gauge Panel Assembly

FIGURE & INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE	SMR CODE
			1	2	3	4	5	6	7			
7-	112708	14487	GAUGE PANEL ASSEMBLY	(See Figure 1 for NHA)						REF		AFF
-1	112712	14487	. TUBE							1		MFZZN
-2	113489	14487	. VALVE, Isolation, Liquid Level (V-10)							1		PAFZZN
B-403-1		02570	. FERRULE, Front							2		XA
B-404-1		02570	. FERRULE, Rear							2		XA
B-402-1		02570	. NUT							2		PAFZZN
-3	113480	14487	. TUBE							1		MFAZZN
-4	113485	14487	. ELBOW, Male							1		PAFZZN
B-411-2-4		02570	. ELBOW, Male							1		PAFZZN
B-403-1		02570	. FERRULE, Front							1		XA
B-404-1		02570	. FERRULE, Rear							1		XA
B-402-1		02570	. NUT							1		PAFZZN
-5	112713	14487	. TUBE							1		MFZZN
-6	113486	14487	. TEE, Union							1		PAFZZN
B-411-3		02570	. TEE							1		PAFZZN
B-403-1		02570	. FERRULE, Front							3		XA
B-404-1		02570	. FERRULE, Rear							3		XA
B-402-1		02570	. NUT							3		PAFZZN
-7	112716	14487	. TUBE							1		MFAZZN
-8	113484	14487	. ELBOW, Female							1		PAFZZN
B-411-8-8		02570	. ELBOW, Female							1		XA
B-403-1		02570	. FERRULE, Front							1		XA
B-404-1		02570	. FERRULE, Rear							1		XA
B-402-1		02570	. NUT							1		PAFZZN
-9	112714	14487	. TUBE							1		MFAZZN
-10	113486	14487	. TEE, Union							1		PAFZZN
B-411-3		02570	. TEE							1		PAFZZN
B-403-1		02570	. FERRULE, Front							3		XA
B-404-1		02570	. FERRULE, Rear							3		XA
B-402-1		02570	. NUT							3		PAFZZN
-11	112843	14487	. TUBE							1		MF
-12	113485	14487	. ELBOW, Male							1		PAFZZN
B-411-2-4		02570	. ELBOW, Male							1		PAFZZN
B-403-1		02570	. FERRULE, Front							1		XA
B-404-1		02570	. FERRULE, Rear							1		XA
B-402-1		02570	. NUT							1		PAFZZN
-13	112715	14487	. TUBE							1		MFAZZN
-14	113487	14487	. SLEEVE							1		PAFZZN
-15	113488	14487	. NUT							1		PAFZZN
-16	113483	14487	. LOCKNUT							1		PAFZZN
-17	113482	14487	. CAP							1		PAFZZN
-18	113481	14487	. UNION, Bulkhead							1		PAFZZN
-19	112717	14487	. GAUGE, Liquid Level (LL-1)							1		PAFZZN
-20	MS17830-4C	96906	. NUT, Hex, self-locking (AP)							4		PAFZZN
-21	MS35233-81	96906	. SCREW, Pan, slotted (AP)							4		PAFZZN
-22	112710	14487	. GAUGE, Pressure Indicator (PI-1)							1		PAFZZN
-23	MS17830-4C	96906	. NUT, Hex, self-locking (AP)							3		PAFZZN
-24	MS35233-81	96906	. SCREW, Pan, slotted (AP)							3		PAFZZN
-25	112711	14487	. NAMEPLATE, C-3							1		MFAZZN
-26	MS20600-AD4W4	96906	. RIVET, Blind (AP)							2		PAFZZN
-27	112841	14487	. NAMEPLATE, LL-1							1		MFAZZN
-28	MS20600-AD4W4	96906	. RIVET, Blind (AP)							2		PAFZZN
-29	112842	14487	. NAMEPLATE, PI-1							1		MFAZZN
-30	MS20600-AD4W4	96906	. RIVET, Blind (AP)							2		PAFZZN
-31	112709	14487	. PANEL, Gage							1		MFFZZN

FIGURE & INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE	SMR CODE
			1	2	3	4	5	6	7			
7-32 -33 -34	114000 MS35233-81 MS17830-4C	14487 96906 96906	.	BRACKET, Hose .....	.	.	.	.	.	1 3 3		MFAZZN PAFZZN PAFZZN

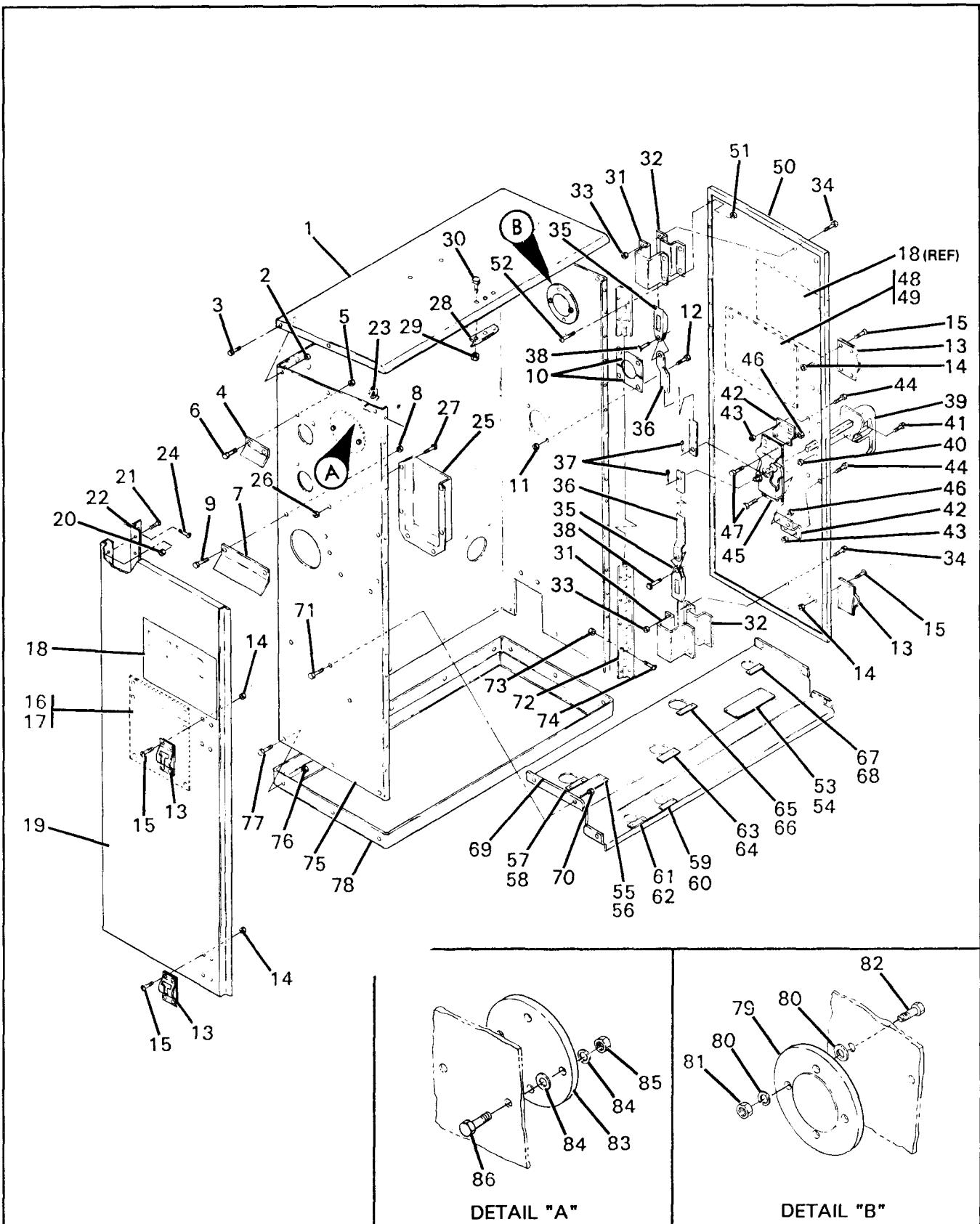


Figure 8. Cabinet Assembly

FIGURE & INDEX NUMBER	PART NUMBER	FSCM	1 2 3 4 5 6 7	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE	SMR CODE
8-	112562	14487		CABINET ASSEMBLY (See Figure 1 for NHA)	REF		AFF
-1	112565	14487		TOP, Cabinet	1		MFFZZN
-2	MS20365-A428	96906		NUT, Hex, self-locking (AP)	11		PAFZZN
-3	MS35292-6	96906		BOLT, Hex Hd (AP)	11		PAFZZN
-4	112833	14487		SHIELD, Short	7		MFFZZN
-5	MS20365-A428	96906		NUT, Hex, self-locking (AP)	2		PAFZZN
-6	MS35292-6	96906		BOLT, Hex Hd (AP)	2		PAFZZN
-7	112829	14487		SHIELD, Long	2		MFFZZN
-8	MS20365-A428	96906		NUT, Hex, self-locking (AP)	2		PAFZZN
-9	MS35292-6	96906		BOLT, Hex Hd (AP)	2		PAFZZN
-10	112831	14487		SPACER, 3-IN.	2		MFFZZN
-11	MS20365-A428	96906		NUT, Hex, self-locking (AP)	2		PAFZZN
-12	MS35292-6	96906		BOLT, Hex Hd (AP)	2		PAFZZN
-13	112956	14487		KEEPER	4		PAFZZN
-14	MS20365-A1032	96906		NUT, Hex, self-locking (AP)	4		PAFZZN
-15	MS35226-64	96906		SCREW, Pan, slotted (AP)	4		PAFZZN
-16	112305	14487		PLATE, Operation	1		PAFZZN
-17	MS20600-AD4W4	96906		RIVET, Blind (AP)	6		PAFZZN
-18	822104-01	98750		DECAL, Liquid Oxygen	1		PAFZZN
-19	112566	14487		DOOR, Left	1		MFFZZN
-20	MS20365-A1032	96906		NUT, Hex, self-locking (AP)	17		PAFZZN
-21	MS35226-64	96906		SCREW, Pan, slotted (AP)	17		PAFZZN
-22	112730	14487		HINGE, Cabinet	1		PAFZZN
-23	MS20365-A1032	96906		NUT, Hex, self-locking (AP)	18		PAFZZN
-24	MS35226-64	96906		SCREW, Pan, slotted (AP)	18		PAFZZN
-25	112834	14487		HOLDER, Manual	1		MFFZZN
-26	MS20365-A428	96906		NUT, Hex, self-locking (AP)	6		PAFZZN
-27	MS35292-6	96906		BOLT, Hex Hd (AP)	6		PAFZZN
-28	113197	14487		STOP, Door	1		MFFZZN
-29	MS20365-A428	96906		NUT, Hex, self-locking (AP)	3		PAFZZN
-30	MS35292-6	96906		BOLT, Hex Hd (AP)	3		PAFZZN
-31	112952	14487		BRACKET, Pawl, outer	2		MFFZZN
-32	112953	14487		BRACKET, Pawl, inner	2		MFFZZN
-33	MS20365-A428	96906		NUT, Hex, self-locking (AP)	4		PAFZZN
-34	MS35292-6	96906		BOLT, Hex Hd (AP)	4		PAFZZN
-35	112950	14487		PAWL	2		XA
-36	112954	14487		BAR, Door	2		MFFZZN
-37	MS9245-61	96906		PIN, Cotter (AP)	1		XA
-38	MS35298-58	96906		BOLT, Hex Hd (AP)	1		PAOZZ
-39	112948	14487		HANDLE	1		PAFZZN
-40	MS20365-A428	96906		NUT, Hex, self-locking (AP)	3		PAFZZN
-41	MS35292-6	96906		BOLT, Hex Hd (AP)	3		PAFZZN
-42	112951	14487		BRACKET, Latch	2		MFFZZN
-43	MS20365-A428	96906		NUT, Hex, self-locking (AP)	2		PAFZZN
-44	MS35292-6	96906		BOLT, Hex Hd (AP)	2		PAFZZN
-45	112949	14487		LATCH	1		PAFZZN
-46	MS20365-A428	96906		NUT, Hex, self-locking (AP)	4		PAFZZN
-47	MS35292-6	96906		BOLT, Hex Hd (AP)	4		PAFZZN
-48	113432	14487		NAMEPLATE, Transportation	1		PAFZZN
-49	MS20600-AD4W4	96906		RIVET, Blind (AP)	4		PAFZZN
-50	112567	14487		DOOR, Right	1		MFFZZN
-51	MS20365-A1032	96906		NUT, Hex, self-locking (AP)	17		PAFZZN
-52	MS35226-64	96906		SCREW, Pan, slotted (AP)	17		PAFZZN
-53	112306	14487		PLATE, Insulation Data	1		PAFZZN
-54	MS20600-AD4W4	96906		RIVET, Blind (AP)	4		PAFZZN

FIGURE & INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE	SMR CODE
			1	2	3	4	5	6	7			
8-55	113588	14487	.	WARNING PLATE, Service Line						1		PAFZZN
-56	MS20600-AD4W4	96906	.	RIVET, Blind (AP)						4		PAFZZN
-57	113399	14487	.	NAMEPLATE, V-3						1		MFFZZN
-58	MS20600-AD4W4	96906	.	RIVET, Blind (AP)						2		PAFZZN
-59	113401	14487	.	NAMEPLATE, V-4						1		MFFZZN
-60	MS20600-AD4W4	96906	.	RIVET, Blind (AP)						2		PAFZZN
-61	113400	14487	.	NAMEPLATE, V-5						1		MFFZZN
-62	MS20600-AD4W4	96906	.	RIVET, Blind (AP)						2		PAFZZN
-63	113402	14487	.	NAMEPLATE, V-6						1		MFFZZN
-64	MS20600-AD4W4	96906	.	RIVET, Blind (AP)						2		PAFZZN
-65	113403	14487	.	NAMEPLATE, V-7						1		MFFZZN
-66	MS20600-AD4W4	96906	.	RIVET, Blind (AP)						2		PAFZZN
-67	113405	14487	.	NAMEPLATE, V-9						1		MFFZZN
-68	MS20600-AD4W4	96906	.	RIVET, Blind (AP)						2		PAFZZN
-69	113398	14487	.	PANEL, Valve						1		MFFZZN
-70	MS20365-A428	96906	.	NUT, Hex, self-locking (AP)						6		PAFZZN
-71	MS35292-6	96906	.	BOLT, Hex Hd (AP)						6		PAFZZN
-72	112730	14487	.	HINGE, Cabinet						1		PAFZZN
-73	MS20365-A1032	96906	.	NUT, Hex, self-locking (AP)						18		PAFZZN
-74	MS35226-64	96906	.	SCREW, Pan, slotted (AP)						18		PAFZZN
-75	112564	14487	.	SIDES, Cabinet						1		MFF
-76	MS20365-A428	96906	.	NUT, Hex, self-locking (AP)						11		PAFZZN
-77	MS35292-6	96906	.	BOLT, Hex Hd (AP)						11		PAFZZN
-78	112563	14487	.	BASE, Cabinet						1		XA
-79	113992	14487	.	FLANGE, Blind						1		MF
-80	113978	14487	.	WASHER, Teflon (AP)						4		MFFZZN
-81	MS20365-A1018	96906	.	NUT, Hex, self-locking (AP)						2		PAFZZN
-82	MS35292-164	96906	.	BOLT, Hex Hd (AP)						2		PAFZZN
-83	COML		.	FLANGE, Blind, RF 3" ASA 150# A182-F304 ..						1		MF
-84	113978	14487	.	WASHER, Teflon (AP)						4		MFFZZN
-85	MS20365-A1018	96906	.	NUT, Hex, self-locking (AP)						2		PAFZZN
-86	MS35292-164	96906	.	BOLT, Hex Hd (AP)						2		PAFZZN

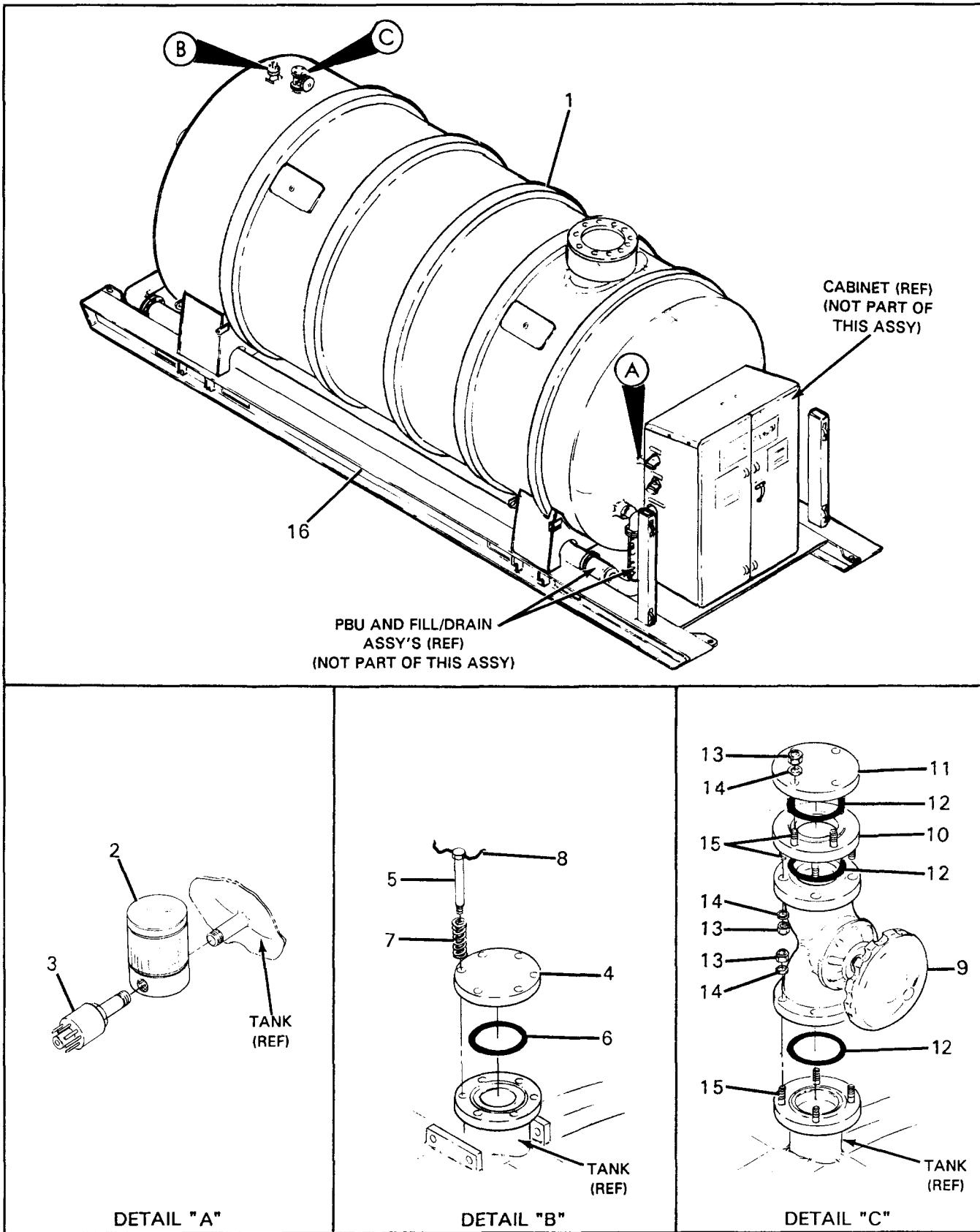


Figure 9. Tank (Vacuum) and Skid Assembly

FIGURE & INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE	SMR CODE
			1	2	3	4	5	6	7			
9-	112221	14487	TANK (VACUUM) AND SKID ASSEMBLY (See Figure 1 for NHA)							REF		XA
-1	112224	14487	. TANK ASSEMBLY							1		XA
-2	112314	14487	. . VALVE, Vacuum (V-2)							1		PAFZZN
-3	112315	14487	. . TUBE, Vacuum (VI-1)							1		PAFZZN
-4	112323	14487	. . FLANGE							1		MF
-5	112322	14487	. . RETAINER							6		PAFZZN
-6	MS28775-236	96906	. . O-RING							1		PAFZZN
-7	113609	14487	. . SPRING							6		PAFZZN
-8	COML		. . WIRE, Safety, .030 DIA., SS							AR		XA
-9	112840	14487	. . VALVE, Vacuum (V-1)							1		PBFZZN
-10	112839	14487	. . ADAPTER							1		MFFZZN
-11	112828	14487	. . FLANGE, Blind							1		MF
-12	MS28775-227	96906	. . O-RING							3		PAFZZN
-13	MS35690-810	96906	. . NUT, Hex, self-locking							12		PAFZZN
-14	MS35338-29	96906	. . WASHER, Split, lock							12		PAFZZN
-15	113109	14487	. . STUD							12		MFFZZN
-16	112542	14487	. SKID ASSEMBLY							1		XA

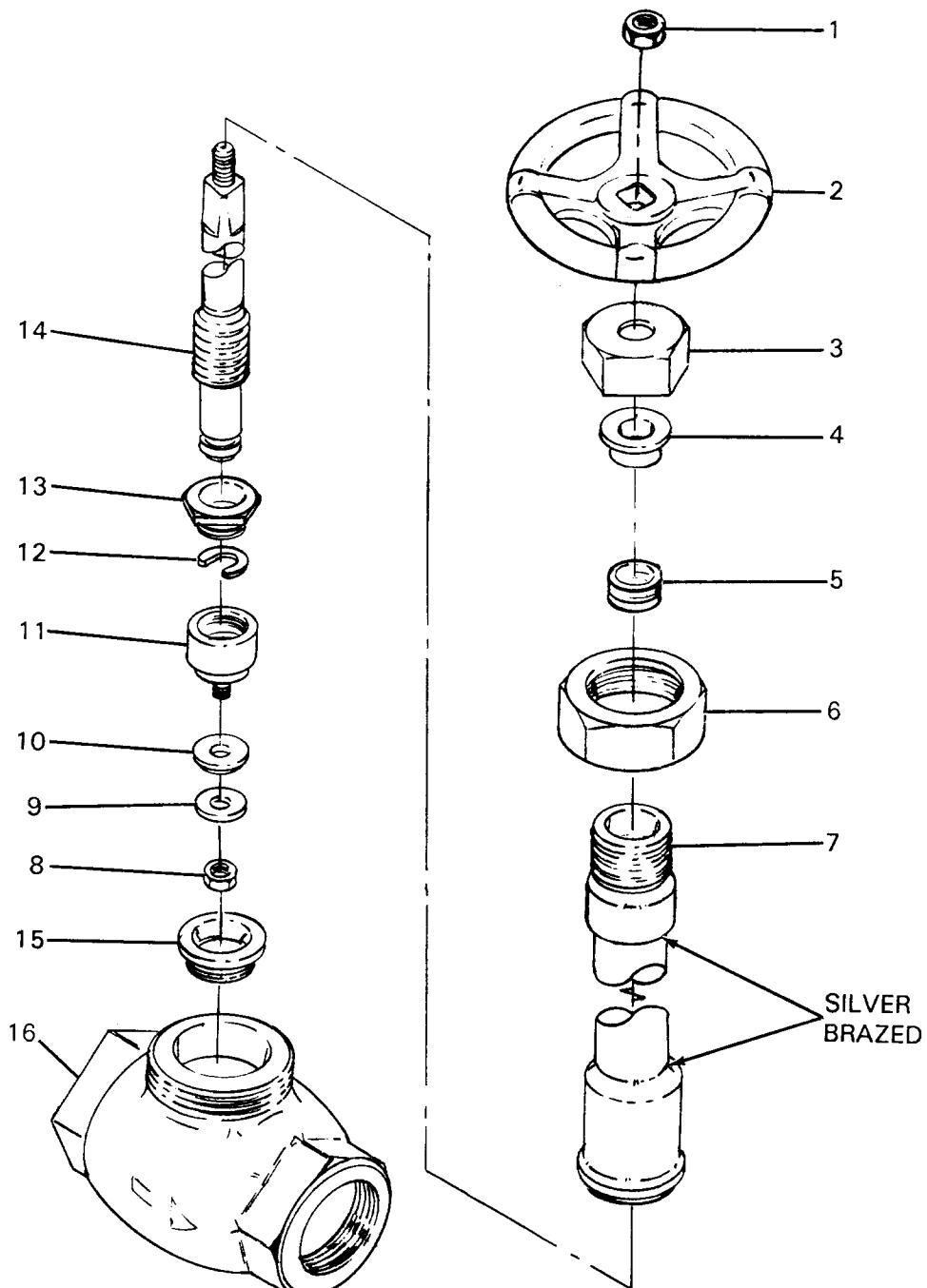


Figure 10. Valve, Globe 1/2-IN. (V-4, V-5, V-9)

FIGURE & INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE	SMR CODE
			1	2	3	4	5	6	7			
10-	112707	14487	VALVE, Globe, $\frac{1}{2}$ -IN. (V-4, V-5, V-9)	(See Figure 1, 5, and 6 for NHA)						REF		PAFZZN
-1	058309-1-1/2	48422	. NUT, Handwheel							1		XA
-2	058309-2-1/2	48422	. HANDWHEEL							1		XA
-3	058309-4-1/2	48422	. NUT, Packing							1		XA
-4	058309-5-1/2	48422	. GLAND, Packing							1		XA
-5	058309-6-1/2	48422	. PACKING SET							1		XA
-6	058309-10-1/2	48422	. NUT, Bonnet							1		XA
-7	058309-7/8-9-1/2	48422	. BONNET ASSEMBLY							1		XA
-8	058309-16-1/2	48422	. NUT, Disc							1		XA
-9	058309-15-1/2	48422	. PLATE, Disc							1		XA
-10	113501	14487	. INSERT, Disc							1		PAFZZN
-11	058309-13-1/2	48422	. HOLDER, Disc							1		XA
-12	058309-12-1/2	48422	. RING, Horseshoe							1		XA
-13	058309-11-1/2	48422	. LOCKNUT, Disc							1		XA
-14	058309-3-1/2	48422	. STEM							1		XA
-15	058309-17-1/2	48422	. RING, Seat							1		XA
-16	058309-18-1/2	48422	. BODY							1		XA

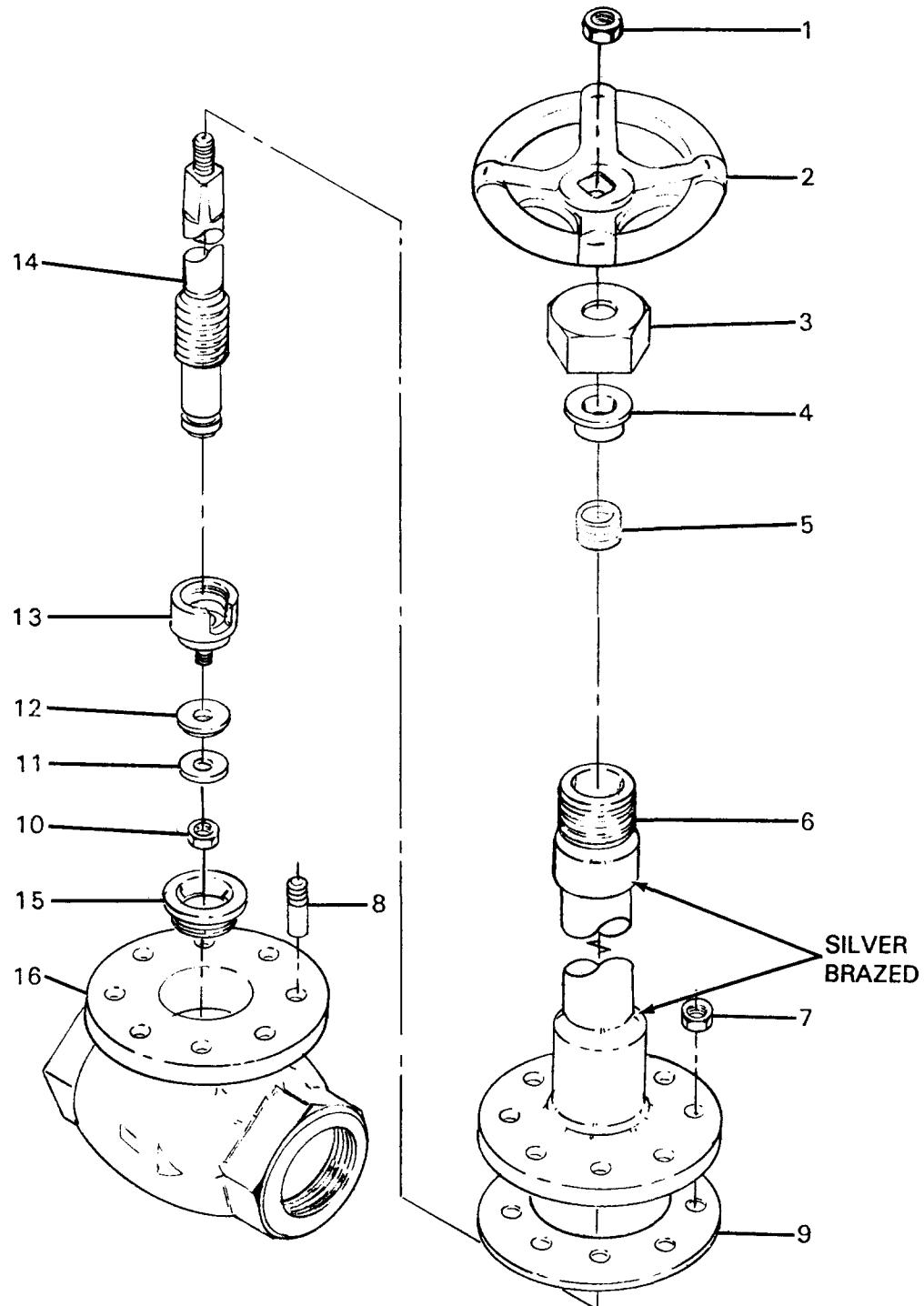


Figure 11. Valve, Globe 3-IN. (V-8)

FIGURE & INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE	SMR CODE
			1	2	3	4	5	6	7			
11-	112671	14487	VALVE, Globe 3-IN. (V-8) (See Figure 4 for NHA)							REF		PAFZZN
-1	058309-1-3	48422	. NUT, Handwheel							1		XA
-2	058309-2-3	48422	. HANDWHEEL							1		XA
-3	058309-4-3	48422	. NUT, Packing							1		XA
-4	058309-5-3	48422	. GLAND, Packing							1		XA
-5	058309-6-3	48422	. PACKING SET							1		XA
-6	058309-7/8/9-3	48422	. BONNET ASSEMBLY							1		XA
-7	058309-20-3	48422	. NUT, Stud (AP)							8		XA
-8	058309-19-3	48422	. STUD (AP)							8		XA
-9	113006	14487	. GASKET							1		MF
-10	058309-16-3	48422	. NUT, Disc							1		XA
-11	058309-15-3	48422	. PLATE, Disc							1		XA
-12	058309-14-3	48422	. INSERT, Disc							1		PAFZZN
-13	058309-13-3	48422	. HOLDER, Disc							1		XA
-14	058309-3-3	48422	. STEM							1		XA
-15	058309-17-3	48422	. RING, Seat							1		XA
-16	058309-18-3	48422	. BODY							1		XA

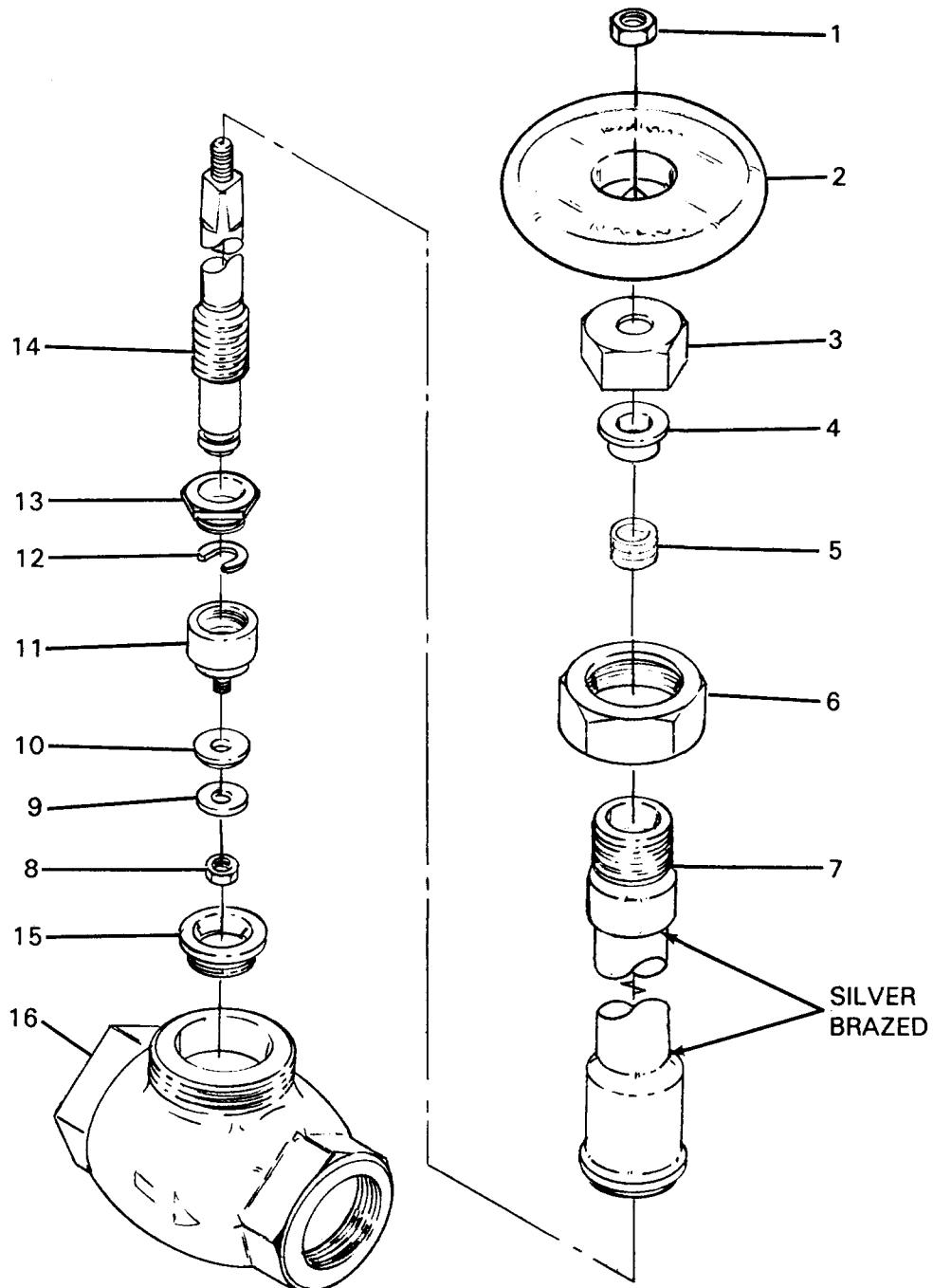


Figure 12. Valve, Globe 1-IN. (V-3, V-7)

FIGURE & INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE	SMR CODE
			1	2	3	4	5	6	7			
12-	113028	14487	VALVE, Globe 1-IN. (V-3, V-7)	(See Figures 5 and 6 for NHA)						REF		PAFZZN
-1	058309-1-1	48422	. NUT, Handwheel							1		XA
-2	058309-2-1	48422	. HANDWHEEL							1		XA
-3	058309-4-1	48422	. NUT, Packing							1		XA
-4	058309-5-1	48422	. GLAND, Packing							1		XA
-5	058309-6-1	48422	. PACKING SET							1		XA
-6	058309-10-1	48422	. NUT, Bonnet							1		XA
-7	058309-7/8/9-1	48422	. BONNET ASSEMBLY							1		XA
-8	058309-16-1	48422	. NUT, Disc							1		XA
-9	058309-15-1	48422	. PLATE, Disc							1		XA
-10	113502	14487	. INSERT, Disc							1		PAFZZN
-11	058309-13-1	48422	. HOLDER, Disc							1		XA
-12	058309-12-1	48422	. RING, Horseshoe							1		XA
-13	058309-11-1	48422	. LOCKNUT, Disc							1		XA
-14	058309-3-1	48422	. STEM							1		XA
-15	058309-17-1	48422	. RING, Seat							1		XA
-16	058309-18-1	48422	. BODY							1		XA

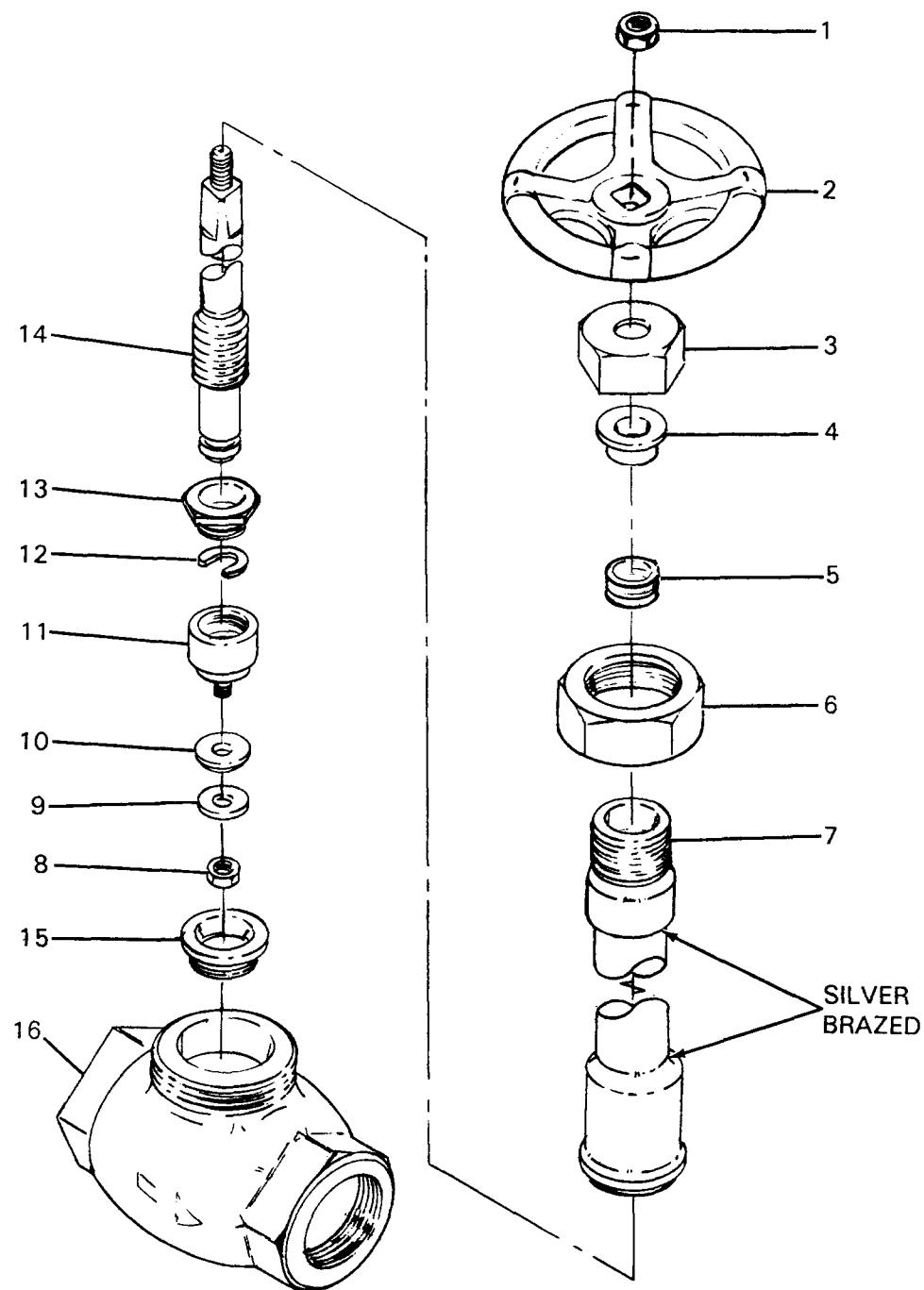


Figure 13. Valve, Globe 2-IN (V-6)

FIGURE & INDEX NUMBER	PART NUMBER	FSCM	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE	SMR CODE
13-	113023	14487	VALVE, Globe 2-IN. (V-6) (See Figure 6 for NHA)	REF		PAFZZN
-1	058309-1-2	48422	. NUT, Handwheel	1		XA
-2	058309-2-2	48422	. HANDWHEEL	1		XA
-3	058309-4-2	48422	. NUT, Packing	1		XA
-4	058309-5-2	48422	. GLAND, Packing	1		XA
-5	058309-6-2	48422	. PACKING SET	1		XA
-6	058309-10-2	48422	. NUT, Bonnet	1		XA
-7	058309-7/8/9-2	48422	. BONNET ASSEMBLY	1		XA
-8	058309-16-2	48422	. NUT, Disc	1		XA
-9	058309-15-2	48422	. PLATE, Disc	1		XA
-10	113503	14487	. INSERT, Disc	1		PAFZZN
-11	058309-13-2	48422	. HOLDER, Disc	1		XA
-12	058309-12-2	48422	. RING, Horseshoe	1		XA
-13	058309-11-2	48422	. LOCKNUT, Disc	1		XA
-14	058309-3-2	48422	. STEM	1		XA
-15	058309-17-2	48422	. RING, Seat	1		XA
-16	058309-18-2	48422	. BODY	1		XA

SECTION III NUMERICAL INDEX

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